

ONTARIO MINISTRY OF ENVIRONMENT



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Ontario

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAM
1980 Sampling Results for Lakes in the Central
Region of the Ministry of the Environment

Ministry
of the
Environment

Central
Region

- 1) Allen Lake, Dudley & Harcourt Twps., Haliburton
- 2) Bass Lake, Orillia & Oro Twps., Simcoe County
- 3) Big Barnham Lake, Dudley Twp., Haliburton
- 4) Big Straggle Lake, Harcourt Twp., Haliburton
- 5) Birch Bark (Trounce) Lake, Twps. of Galway & Cavendish, Peterborough
- 6) Black Lake, Twp. of Muskoka Lakes, Muskoka
- 7) Boshkung Lake, Stanhope Twp., Haliburton
- 8) Bruce Lake, Twp. of Muskoka Lakes, Muskoka
- 9) Canning Lake, Minden and Snowdon Twps., Haliburton
- 10) Chandos Lake, Twp. of Chandos, Peterborough
- 11) Clear Lake, Town of Bracebridge, Muskoka
- 12) Clearwater Lake, Town of Gravenhurst, Muskoka
- 13) Cordova Lake, Township of Belmont, Peterborough
- 14) Crego Lake, Township of Somerville, Victoria County
- 15) Crystal Lake, Township of Galway, Peterborough
- 16) Doeskin Lake, Town of Gravenhurst, Muskoka
- 17) Drag Lake, Dudley and Dysart Twps., Haliburton
- 18) Dummer Lake, Township of Dummer, Peterborough
- 19) East Lake, Harcourt Twp., Haliburton
- 20) Echo Lake, Twp. of Lake of Bays, Muskoka
- 21) Farlain Lake, Tiny Twp., Simcoe County
- 22) George's Lake, Harcourt Twp., Haliburton
- 23) Gibson Lake, Twp. of Georgian Bay, Muskoka
- 24) Go Home Lake, Twp. of Georgian Bay, Muskoka
- 25) Gull Lake, Lutterworth Twp., Haliburton
- 26) Haliburton Lake, Harburn Twp., Haliburton
- 27) Halls Lake, Stanhope Twp., Haliburton
- 28) Harp Lake, Town of Huntsville, Muskoka
- 29) Head Lake, Twps. of Laxton & Digby, Victoria County
- 30) Jack Lake, Twps. of Burleigh & Methuen, Peterborough
- 31) Kahshe Lake, Twp. of Gravenhurst, Muskoka
- 32) Kashagawigamog Lake, Dysart and Minden Twps., Haliburton
- 33) Kasshabog Lake, Twps. of Belmont & Methune, Peterborough
- 34) Kawagama Lake, Sherborne Twp., Haliburton
- 35) Kennaway Lake, Harcourt Twp., Haliburton
- 36) Kennisis Lake, Havelock and Guilford Twps., Haliburton
- 37) Koshlong Lake, Glamorgan Twp., Haliburton
- 38) Lake of Bays, Twp. of Lake of Bays, Muskoka
- 39) Lake Joseph, Twp. of Muskoka Lakes, Muskoka
- 40) Lake St. John, Rama Twp., Simcoe County
- 41) Leech Lake, Town of Bracebridge, Muskoka
- 42) Leonard Lake, Twp. of Muskoka Lakes, Muskoka
- 43) Little Kennisis Lake, Havelock Twp., Haliburton
- 44) Little Lake, Twp. of Georgian Bay, Muskoka
- 45) Little Straggle, Twp. of Harcourt, Haliburton
- 46) Long Lake, Dudley Twp., Haliburton
- 47) Long Lake, Monmouth Twp., Haliburton
- 48) Loon Lake, Dysart Twp., Haliburton
- 49) Looncall Lake, Twp. of Burleigh, Peterborough
- 50) Miskwabi Lake, Dudley Township, Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAM Cont'd

- 50) Mary Lake, Town of Huntsville, Muskoka
- 51) Medora Lake, Twp. of Muskoka Lakes, Muskoka
- 52) Morrison Lake, Town of Gravenhurst, Muskoka
- 53) Mountain Lake, Minden Twp., Haliburton
- 54) Muldrew Lake, Town of Gravenhurst, Muskoka
- 55) Muskoka Bay, Town of Gravenhurst, Muskoka
- 56) Nine Mile Lake, Twp. of Muskoka Lakes, Muskoka
- 57) Percy Lake, Harburn Twp., Haliburton
- 58) Pine Lake, Town of Bracebridge, Muskoka
- 59) Pine Lake, Town of Gravenhurst, Muskoka
- 60) Ril Lake, Twp. of Lake of Bays, Muskoka
- 61) Salerno Lake, Snowdon and Glamorgan Twps., Haliburton
- 62) Shadow Lake, Twp. of Sommerville, Victoria County
- 63) Six Mile Lake, Twp. of Georgian Bay, Muskoka
- 64) Skeleton Lake, Twp. of Muskoka Lakes, Muskoka
- 65) Soyers Lake, Twp. of Minden, Haliburton
- 66) Stony Lake, Twp. of Dummer, Peterborough
- 67) Sunny Lake, Town of Gravenhurst, Muskoka
- 68) Tasso Lake, Twp. of Lake of Bays, Muskoka
- 69) Tock Lake, McClintock Twp., Haliburton
- 70) Twelve Mile Bay, Twp. of Georgian Bay, Muskoka
- 71) Twelve Mile Lake, Minden Twp., Haliburton
- 72) Walker's Lake, Twp. of Lake of Bays, Muskoka
- 73) Waseosa Lake, Town of Huntsville, Muskoka
- 74) Wenona Lake, Dudley Twp., Haliburton
- 75) Wood Lake, Town of Bracebridge, Muskoka

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Ministry
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Central
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SECCHI DISC - CHLOROPHYLL a SELF-HELP PROGRAMME - 1981

The "Self-Help Programme" was initiated in 1971 in response to many requests from concerned cottagers for water quality surveys on many recreational lakes throughout the Province. In the Self-Help Programme, cottagers perform the sample collection on their lakes and the Ministry analyzes and interprets the water quality information.

Volunteers in the Self-Help Programme are supplied with sampling kits which include a Secchi disc, a water sampler, sample bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples bi-weekly during the ice-free period of the year. The water samples are then shipped to the nearest Ministry of the Environment laboratory where they are analyzed for chlorophyll a. The true value of this program will only be realized if it is continued for a number of years in order to define long-term trends with regard to variations in the enrichment status of the lakes.

Enrichment of lakes occurs when fertilizing nutrients, such as nitrogen and phosphorus, enter the lake via rainfall, runoff from land, and shoreline development activities (i.e. subsurface disposal systems, land clearing, etc). These nutrients promote the growth of aquatic plants and algae. It is important to realize that small to moderate amounts of aquatic plants and algae are necessary to provide food for aquatic, invertebrate organisms which serve, in turn, as food for fish. Too much growth, however, may interfere with water-oriented, recreational activities.

Previous experience has indicated that there are three general categories of lake enrichment. All three categories exist in nature, however, man's activities can alter a lake's enrichment status. The transparency of the water as indicated by Secchi disc readings and the density of suspended, microscopic, aquatic plants called algae, as indicated by chlorophyll a concentrations are measurements that are used to determine the enrichment status of a lake. The following table shows how these two measurements are interpreted to determine the enrichment status of a lake.

<u>Enrichment Status</u>	<u>Secchi Disc (S.D.) (meters - m)</u>	<u>Chlorophyll <u>a</u> Concentrations (Chl. <u>a</u>) (micrograms/litre - ug/L)</u>
Enriched	0-3 m	4 ug/L or greater
Moderately Enriched	3-5 m	2-4 ug/L
Unenriched	5 m or greater	0-2 ug/L

Enriched Lakes

These lakes have high concentrations of nutrients and are characterized by excessive growths of algae and aquatic weeds. This may interfere with water-oriented, recreational activities. As a result of the large amount of algae suspended in the water, Secchi disc readings are generally less than 3 metres and chlorophyll a concentrations are 4 ug/L or greater.

Moderately Enriched Lakes

These lakes have moderate concentrations of nutrients and are characterized by moderate growths of algae and aquatic weeds. They are suitable for the pursuit of water-oriented, recreational activities, however, they may develop periodic problems such as algae blooms. Secchi disc readings range from 3 to 5 metres and chlorophyll a concentrations range from 2 to 4 ug/L.

Unenriched Lakes

These lakes are the most desirable from a recreational standpoint. If these lakes are deep, they may support a cold water fishery such as lake trout. These are usually clear-water lakes, with low concentrations of nutrients. Secchi disc readings are 5 metres or greater and chlorophyll a concentrations are less than 2 ug/L.

JB/ns/W-R

ALLEN LAKE

Dudley & Harcourt Townships

Provisional County of Haliburton

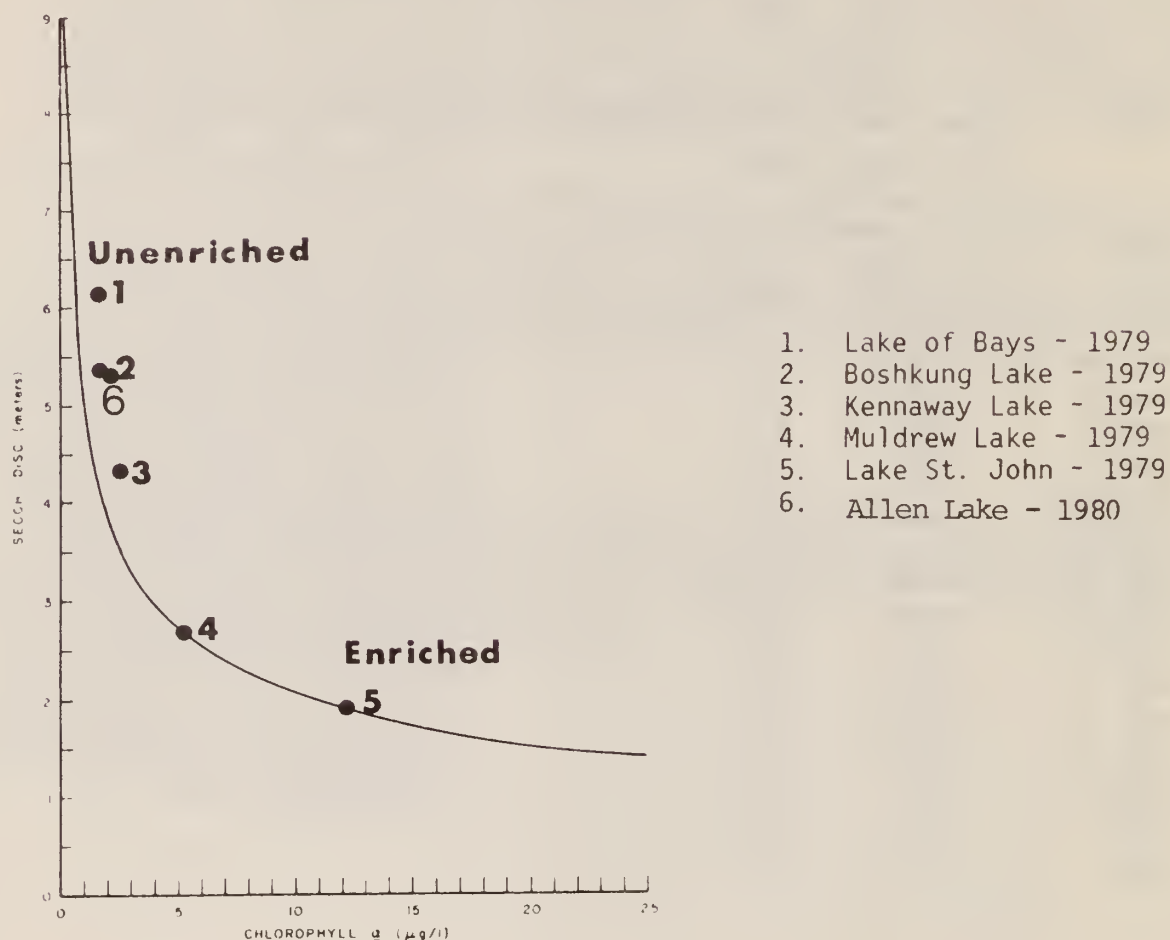
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Allen Lake in 1980

Station	Main		
Date	S.D.	Chl.a	
May 19	6.0	1.5	Secchi disc readings varied from 4.0 to 6.5 metres during the sampling period with the highest measurements of water transparency occurring during May, June, late August and September. The chlorophyll <u>a</u> concentrations varied from 1.0 to 3.4 ug/L. The lowest densities of suspended algae coincided with the highest degree of water transparency. Based on the seasonal means for these two parameters, Allen Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.
May 25	6.5	1.0	
June 1	6.5	1.7	
June 8	6.0	1.5	
June 15	6.0	1.9	
June 30	5.0	2.4	
July 6	4.5	2.8	
July 13	4.75	1.8	
July 20	4.0	3.4	
July 27	4.0	2.4	
Aug. 4	4.5	2.6	
Aug. 10	5.25	2.0	
Aug. 17	4.75	3.1	
Aug. 23	6.0	1.9	
Sept. 1	<u>5.5</u>	<u>1.8</u>	
Mean	5.3	2.1	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Allen Lake from 1973 to 1980

Station	Main		
Year	S.D.	Chl.a	
1971			
1972			
1973	4.7	1.3	
1974	4.9	1.2	
1975	5.6	1.8	
1976	5.3	1.8	
1977	5.6	- -	
1978	5.3	1.6	
1979	5.2	1.8	
1980	5.3	2.1	

Figure 1: The relationship between Secchi disc and chlorophyll a for Allen Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last eight years, the seasonal mean Secchi disc reading has ranged from 4.7 m to 5.6 m and the chlorophyll a concentration has ranged from 1.2 to 2.1 $\mu\text{g/L}$. This minimal degree of variation indicates that conditions in Allen Lake are stable. Continued participation in this programme is recommended in order to determine if this condition persists.

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DON MILLS, Ontario, M3C 3C3, Telephone: (416) 424-3000, Attention: Dhan
Sharma

BASS LAKE

Orillia & Oro Townships

Simcoe County

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Bass Lake in 1980

Station	Main	
Date	S.D.	Chl.a
May 3	2.25	10.0
June 17	2.4	6.0
July 1	4.26	1.4
July 14	4.33	3.0
July 29	3.70	4.8
Aug. 2	3.05	5.2
Aug. 28	3.33	6.1
Sept. 15	3.66	2.7
Oct. 2	4.33	1.9
Mean	3.5	4.6

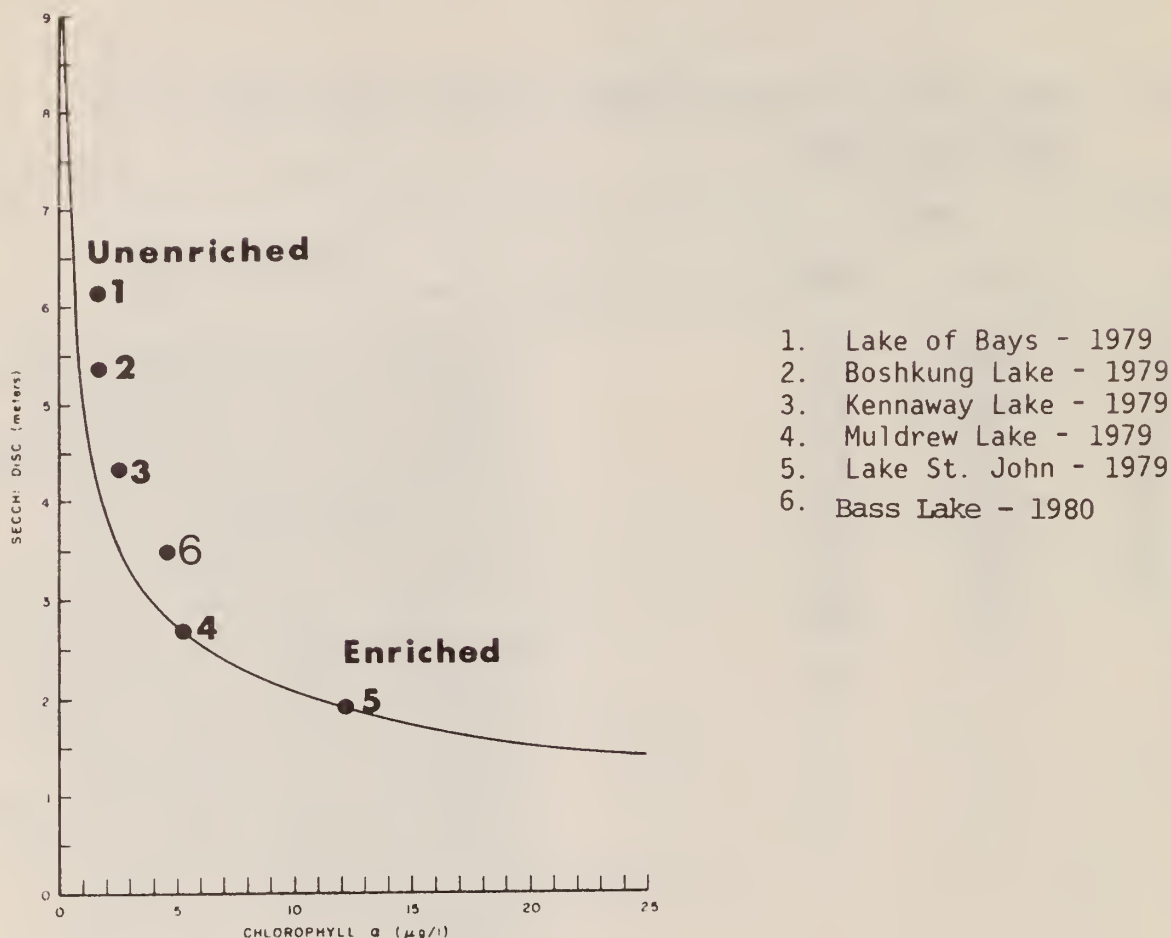
The Secchi disc readings varied from 2.25 - 4.33 metres during the sampling period. The highest measurements of water transparency occurred in early July and October and coincided with the lowest densities of suspended algae. Chlorophyll a varied from 1.4 to 10.0 ug/L. This is a wide range in concentration. The highest value occurred on May 3, 1980 and was probably a result of an "algae bloom". Based on the seasonal means for the two parameters monitored, Bass Lake would be considered moderately enriched with moderately high densities of suspended algae and a moderate degree of water transparency.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Bass Lake from 1973 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973	2.2	2.6
1974	2.0 (1.6*)	2.4 (6.4*)
1975	1.9	6.5
1976	2.0	4.8
1977	2.1	- -
1978	1.8	6.7
1979	2.3	6.1
1980	3.5	4.6

*MOE data

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Bass Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last eight years, the seasonal mean Secchi disc reading has ranged from 1.8m to 3.4m and the chlorophyll *a* concentration has ranged from 2.4 to 6.7 $\mu\text{g/L}$. Conditions in Bass Lake have improved in 1980 to change the enrichment status of the lake from enriched to moderately enriched. Continued participation in this programme is recommended to determine if this trend continues.

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BIG BARNHAM LAKE

Dudley Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Big Barnham Lake in 1980

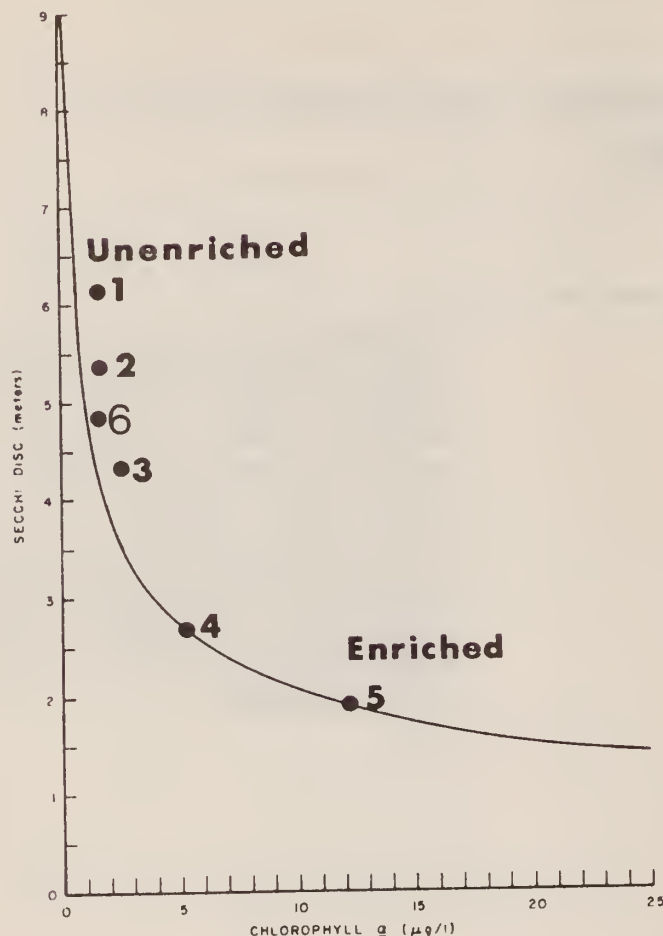
Station	Main	
Date	S.D.	Chl.a
May 25	5.0	1.6
June 1	5.0	1.5
June 8	5.0	1.2
June 15	5.0	1.2
June 21	5.0	1.2
June 30	5.0	1.5
July 6	5.0	1.9
July 12	4.0	2.0
July 19	5.0	2.6
July 27	4.0	2.0
Aug. 4	5.0	1.8
Aug. 9	4.0	1.3
Aug. 17	5.0	--
Aug. 31	<u>5.0</u>	<u>1.5</u>
Mean	4.8	1.6

The Secchi disc readings showed very little variation during the sampling period ranging from 4.0 to 5.0 m. The chlorophyll a concentrations varied from 1.2 to 2.6 ug/L. Based on the seasonal means for the parameters monitored, Big Barnham Lake would be considered unenriched, characterized by a moderately high degree of water transparency and low densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Big Barnham Lake from 1975 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975	5.5	1.6
1976	4.7	4.0
1977	6.0	--
1978	5.9	1.4
1979	5.6	2.0
1980	4.8	1.6

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Barnham Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Big Barnham Lake - 1980

During the last six years, the seasonal mean Secchi disc reading has ranged from 4.78 to 6.0 m and the chlorophyll a concentration has ranged from 1.4 - 4.0 ug/L. Conditions in Big Barnham Lake have experienced only minor variations, indicating a stable lake condition. Continued participation in this programme is recommended, to determine if this condition persists.

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BIG STRAGGLE LAKE

Harcourt Township

Provisional County of Haliburton

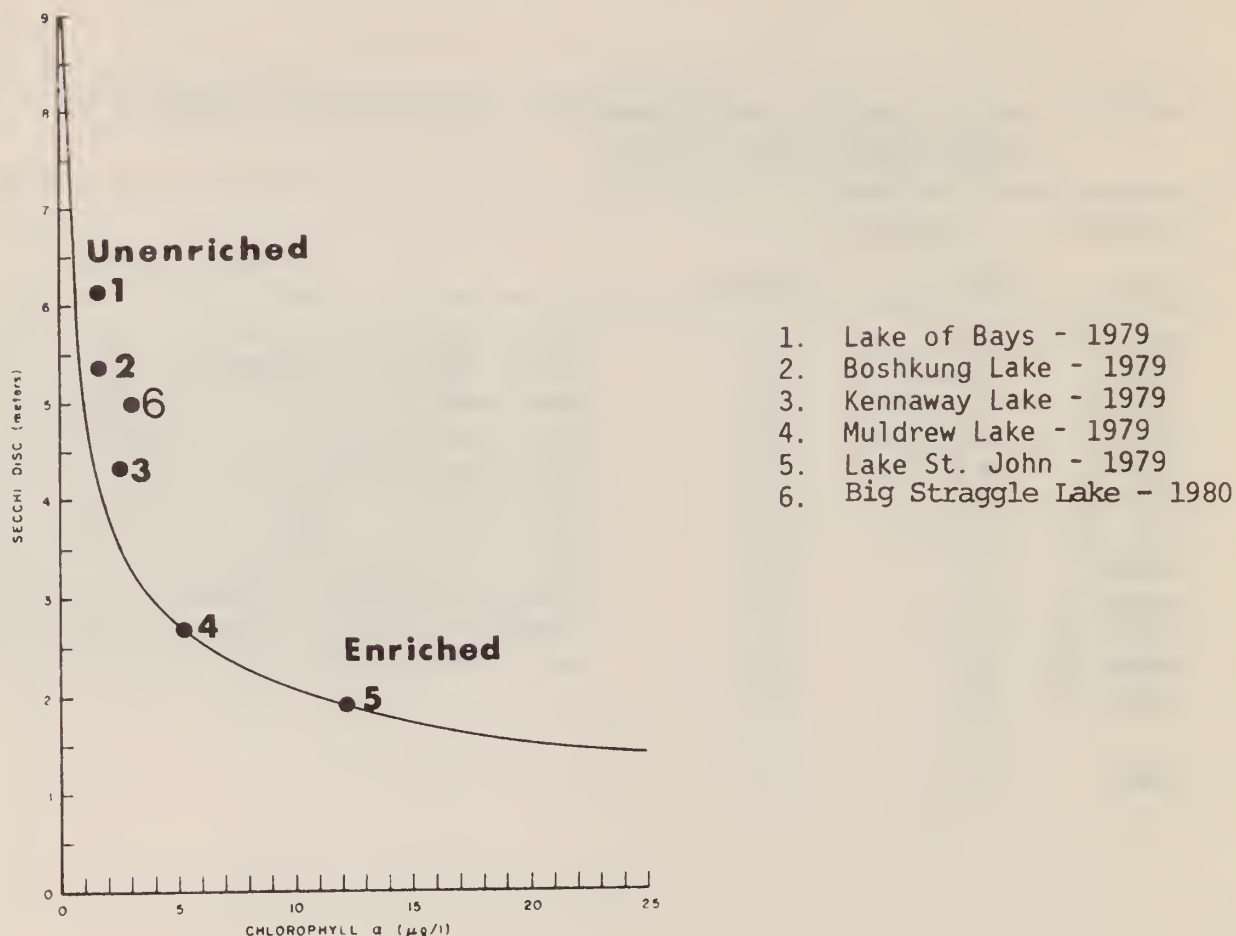
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Big Straggle Lake in 1980.

Station	Centre		
Date	S.D.	Chl. <u>a</u>	
May 19	5.6	3.6	Secchi disc readings varied from 4.0 to 6.0 metres during the sampling period. The highest measurements of water transparency occurred in May and August and coincided with lower densities of suspended algae. Chlorophyll <u>a</u> concentrations varied considerably from 2.0 to 4.9 ug/L. Based on the seasonal means for the two parameters measured, Big Straggle Lake would be considered moderately enriched with a moderately high degree of water transparency and a moderate density of suspended algae.
June 1	5.2	2.2	
June 30	4.0	4.9	
July 6	4.1	3.8	
July 13	4.8	3.2	
July 20	4.1	3.2	
July 27	4.3	3.0	
August 4	4.8	2.9	
August 10	5.5	2.0	
August 17	5.6	2.7	
August 24	6.0	2.2	
August 31	5.8	2.1	
Mean	5.0	3.0	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Big Straggle Lake from 1971 to 1980.

Station	Centre	
Year	S.D.	Chl. <u>a</u>
1971	3.8	2.1
1972	-	-
1973	4.6	4.0
1974	4.8	1.4
1975	6.0	1.7
1976	4.5	1.8
1977	5.7	-
1978	5.4	2.2
1979	4.6	3.1
1980	5.0	3.0

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Straggle Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last 10 years, the seasonal mean Secchi disc reading has ranged from 3.8 to 6.0 metres and the chlorophyll a concentration has ranged from 1.4 - 4.0 ug/L. Conditions in Big Straggle Lake have experienced only minor variations, indicating a stable lake condition. Continued participation in this programme is recommended to determine if this condition persists.

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BIRCH BARK (TROUNCE) LAKE

Townships of Galway & Cavendish

County of Peterborough

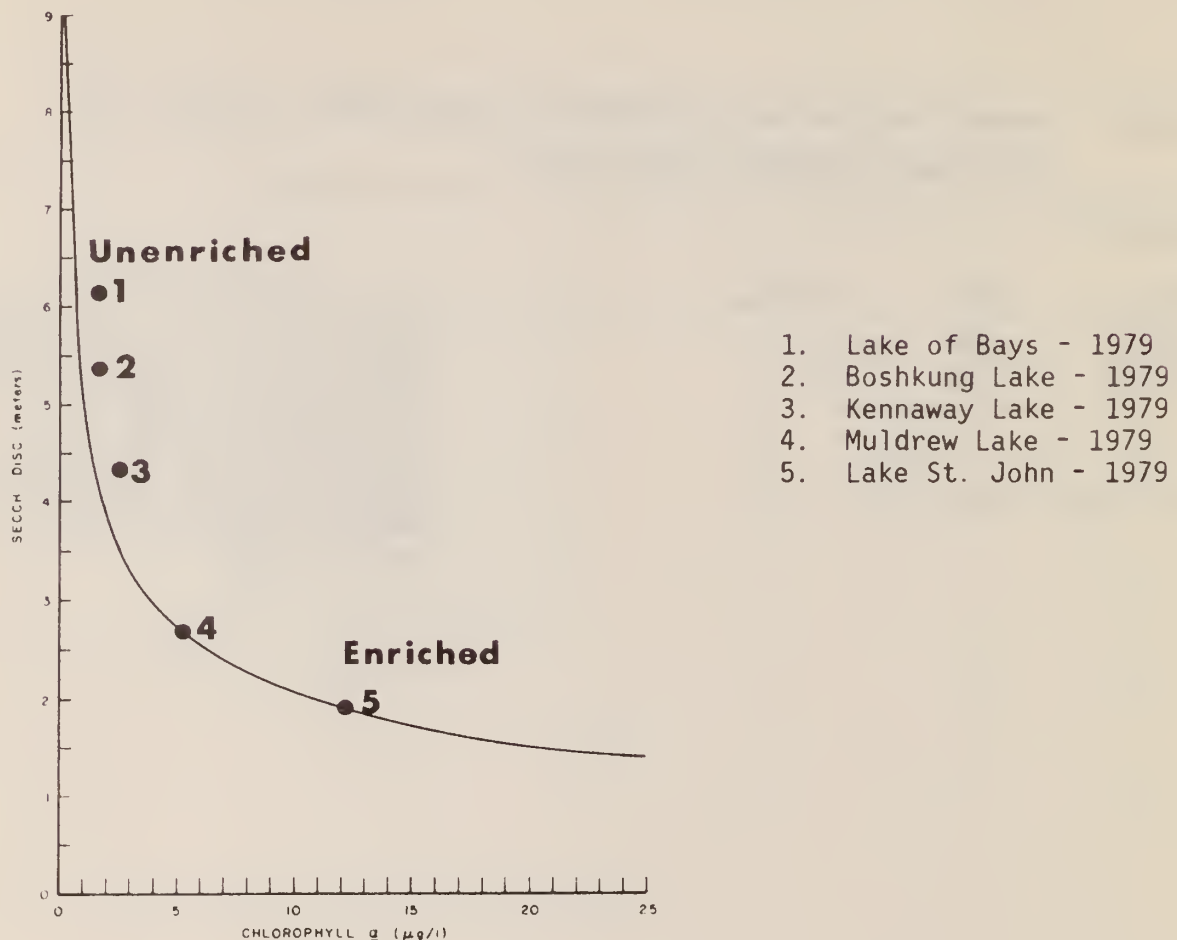
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Birch Bark (Trounce) Lake in 1980

Station			
Date	S.D.	Chl. <u>a</u>	
July 13	4.6	2.2	Insufficient data was collected during 1980 to allow meaningful conclusions on the enrichment status of the lake. It is recommended that six sets of samples be taken throughout the season in order to get a reliable seasonal mean.
Aug. 31	5.2	2.0	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Birch Bark Lake for 1977, 1978, 1979 & 1980

Station		
Year	S.D.	Chl. <u>a</u>
1971		
1972		
1973		
1974		
1975		
1976		
1977	4.8	- -
1978	5.3	1.8
1979	5.3	1.9
1980	- -	- -

Figure 1: The relationship between Secchi disc and chlorophyll a for Birch Bark (Trounce) Lake and a number of recreational lakes in the province. All data are seasonal means.



Continued participation in the program with more frequent sampling is suggested.

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BLACK LAKE

Township of Muskoka Lakes

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Black Lake in 1980

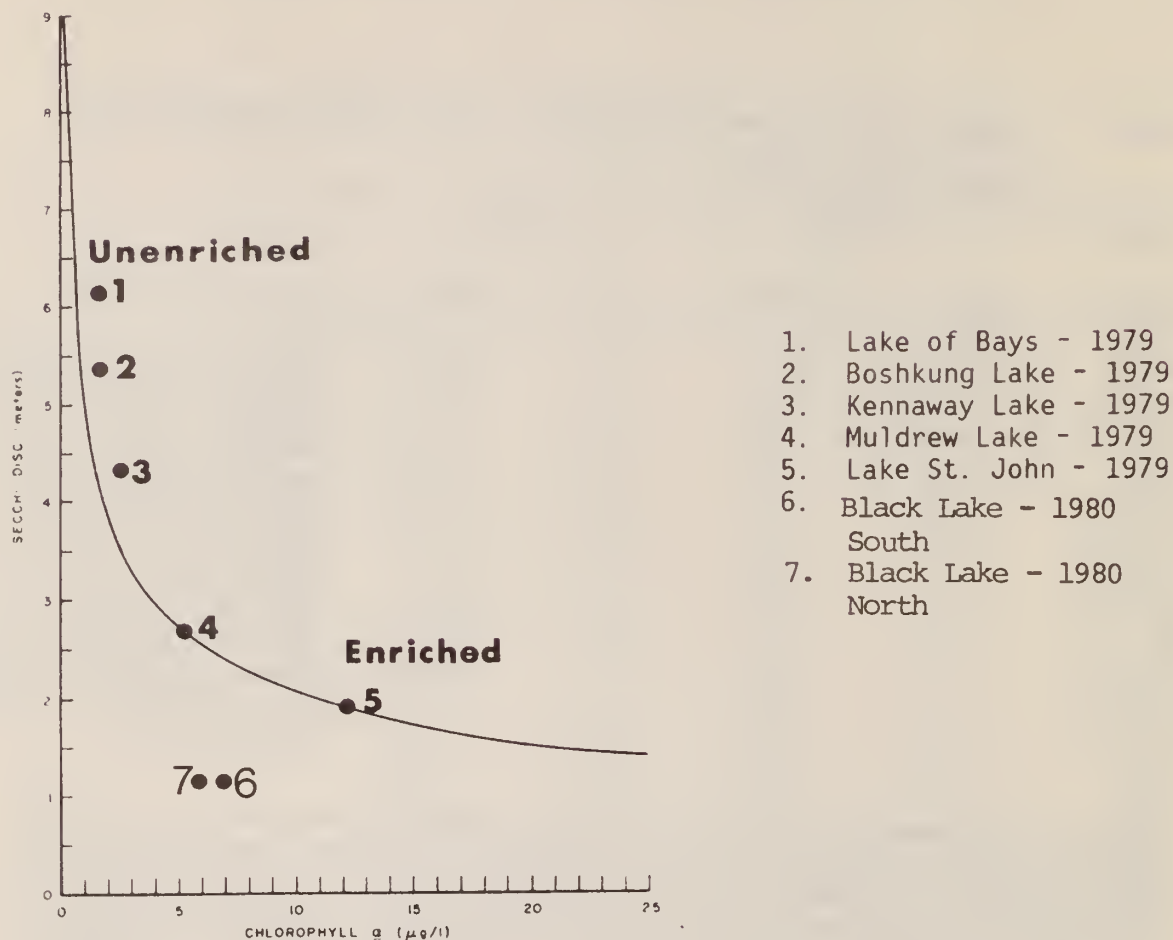
Station	South		North		
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	
June 1	1.2	10.4	1.0	10.6	The Secchi disc readings varied from 1.0 to 1.8 metres at both stations during the sampling period. The chlorophyll <u>a</u> concentrations varied considerably at both stations, ranging from 2.0 to 11.0 ug/L at the South station and 1.2 to 12.0 ug/L at the North station.
June 8	1.0	11.0	1.0	12.0	
June 22	1.1	11.0	1.0	8.5	
July 1	1.1	6.7	1.0	6.5	
July 6	1.0	5.0	1.0	6.6	
July 13	1.8	7.7	1.8	4.7	
July 20	1.5	4.4	1.0	4.5	
July 27	- -	8.2	- -	4.6	
Aug. 4	1.3	7.5	1.3	4.4	
Aug. 10	1.0	7.7	1.3	7.2	
Aug. 17	- -	2.6	- -	3.1	The high densities of suspended algae present in early June were probably the result of an "algae bloom".
Aug. 24	- -	4.3	- -	1.3	
Sept. 1	<u>1.4</u>	<u>2.0</u>	<u>1.3</u>	<u>1.2</u>	
Mean	1.2	6.8	1.2	5.8	

Based on the seasonal means for the two parameters monitored, Black Lake would be considered enriched characterized by poor water transparency and high densities of suspended algae. Because Black Lake is coloured with dissolved and suspended materials other than algae, the water transparency is less than normally associated with the measured density of suspended algae. The variation in water quality between the two stations sampled is minimal.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Black Lake for 1975, 1979 and 1980

Station	Main		South		North	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
1971						
1972						
1973						
1974						
1975	1.8	3.8	1.8	4.1	1.8	4.1
1976						
1977						
1978						
1979			1.3	8.4	1.3	9.0
1980			1.2	6.8	1.2	5.8

Figure 1: The relationship between Secchi disc and chlorophyll a for Black Lake and a number of recreational lakes in the province. All data are seasonal means.



The three years of available data are insufficient to determine if there has been any alteration in the status of Black Lake. The chlorophyll a concentrations vary considerably from 4.1 - 9.0 $\mu\text{g/L}$ at the North station and from 4.1 - 8.4 $\mu\text{g/L}$ at the South Station. It is recommended that participation in this programme be continued, in order to determine any long-term water quality trends affecting Black Lake.

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BOSHKUNG LAKE

Stanhope Township

Provisional County of Haliburton

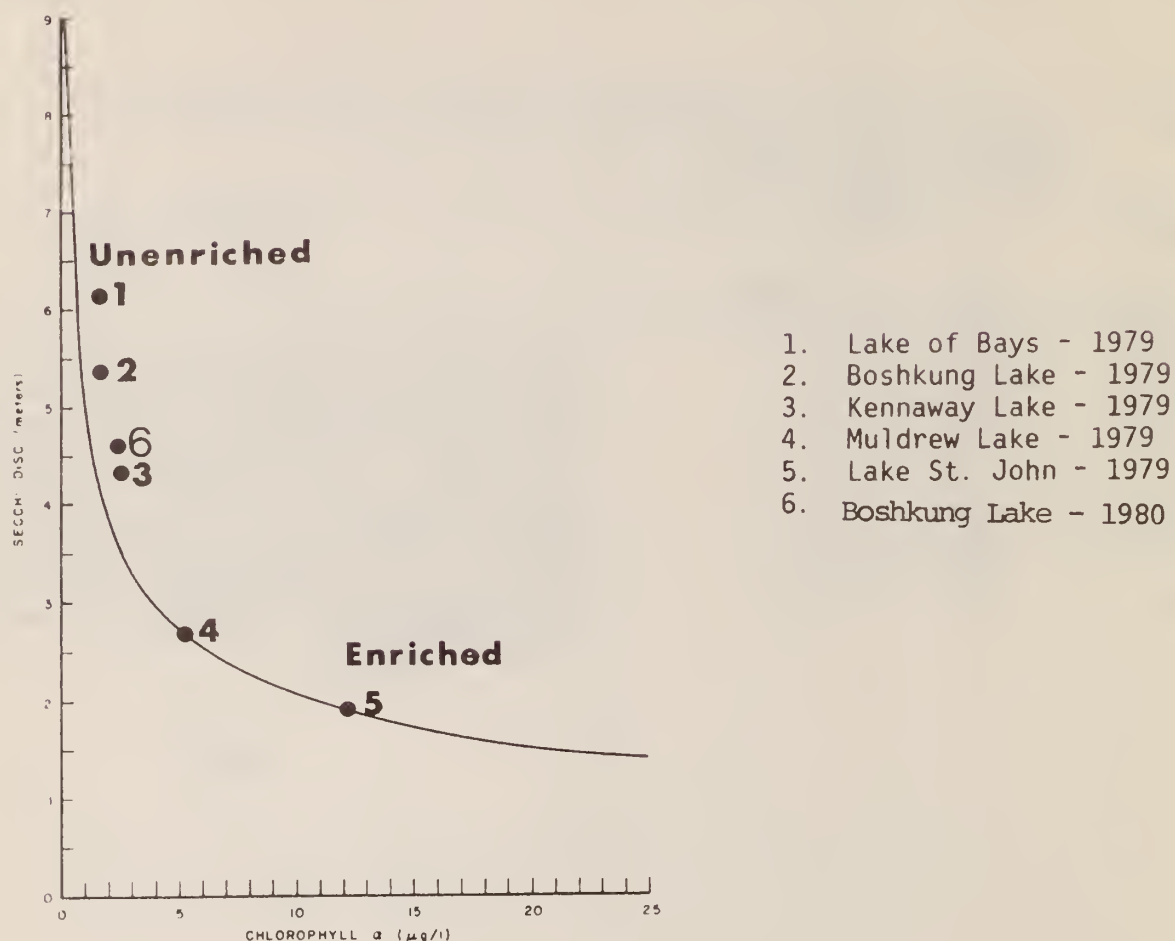
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Boshkung Lake in 1980

Station	Middle		
Date	S.D.	Chl.a	
June 8	4.0	2.7	Secchi disc readings varied from 4.0 to 5.3 metres during the sampling period with the highest measurements of transparency occurring in October. The chlorophyll <u>a</u> concentrations varied from 2.1 to 2.7 ug/L. Based on the seasonal means for the two parameters monitored, Boshkung Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.
July 6	4.69	2.1	
July 27	4.6	2.3	
Aug. 10	4.77	2.1	
Sept. 7	4.32	2.5	
Sept. 21	4.27	2.1	
Oct. 13	<u>5.26</u>	<u>2.3</u>	
Mean	4.6	2.3	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Boshkung Lake from 1972 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972	5.6	0.9
1973	5.6	2.0
1974	- -	0.9
1975	5.2	1.4
1976	- -	- -
1977	6.6	- -
1978	- -	- -
1979	5.4	1.6
1980	4.6	2.3

Figure 1: The relationship between Secchi disc and chlorophyll a for Boshkung Lake and a number of recreational lakes in the province. All data are seasonal means.



The six years of available data indicate that the enrichment status of Boshkung Lake has been stable until 1980. In 1980, there was a decrease in the seasonal mean Secchi disc reading and an increase in chlorophyll a concentrations sufficient to change the enrichment status of Boshkung Lake from unenriched to moderately enriched. The reason for this change in enrichment status is not apparent. It is recommended that participation in this programme be continued to determine if this change in status persists.

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BRUCE LAKE

Township of Muskoka Lakes

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Bruce Lake in 1980

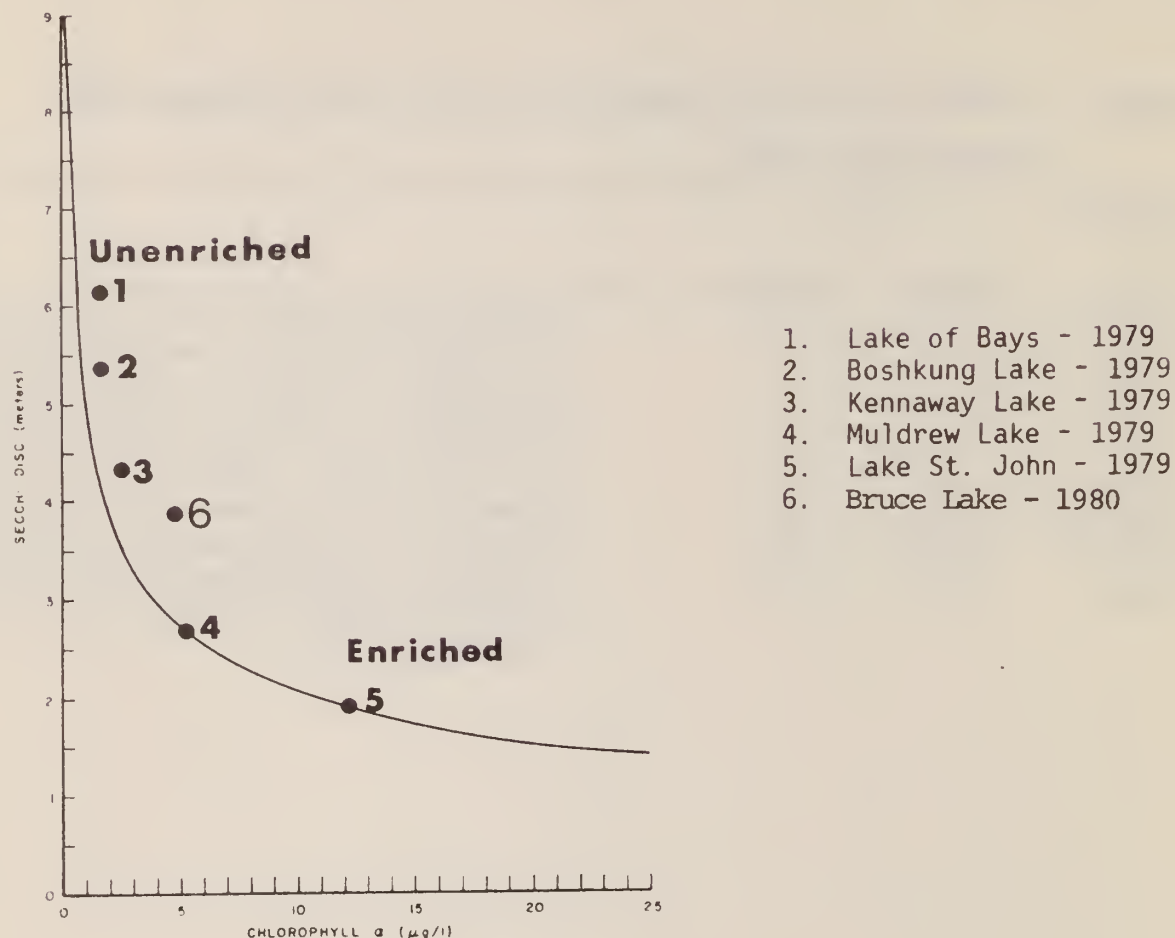
Station	A	
Date	S.D.	Chl.a
June 18	2.75	3.1
June 29	3.0	4.6
July 13	4.5	4.1
July 21	5.0	3.7
Aug. 4	4.75	5.0
Aug. 19	3.75	6.5
Aug. 31	4.0	4.5
Sept. 16	<u>2.75</u>	<u>6.6</u>
Mean	3.8	4.8

Secchi disc readings varied from 2.75 to 5.0 metres during the sampling period, with the highest degree of water transparency occurring in late July and early August. Chlorophyll a concentrations varied from 3.1 to 6.6 ug/L. Based on the seasonal means for the two parameters monitored, Bruce Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and high densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Bruce Lake from 1977 to 1980

Station	A	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975		
1976		
1977	1.8	- -
1978	3.6	4.8
1979	3.9	5.2
1980	3.8	4.8

Figure 1: The relationship between Secchi disc and chlorophyll a for Bruce Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last four years, the seasonal mean Secchi disc reading ranged from 1.8 to 3.9 metres and the chlorophyll a concentration has ranged from 4.8 to 5.2 $\mu\text{g/L}$. Conditions in Bruce Lake have shown only minor variations since 1977, however, continued participation in this programme is recommended to determine if this condition persists.

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CANNING LAKE

Minden and Snowdon Townships

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Canning Lake in 1980

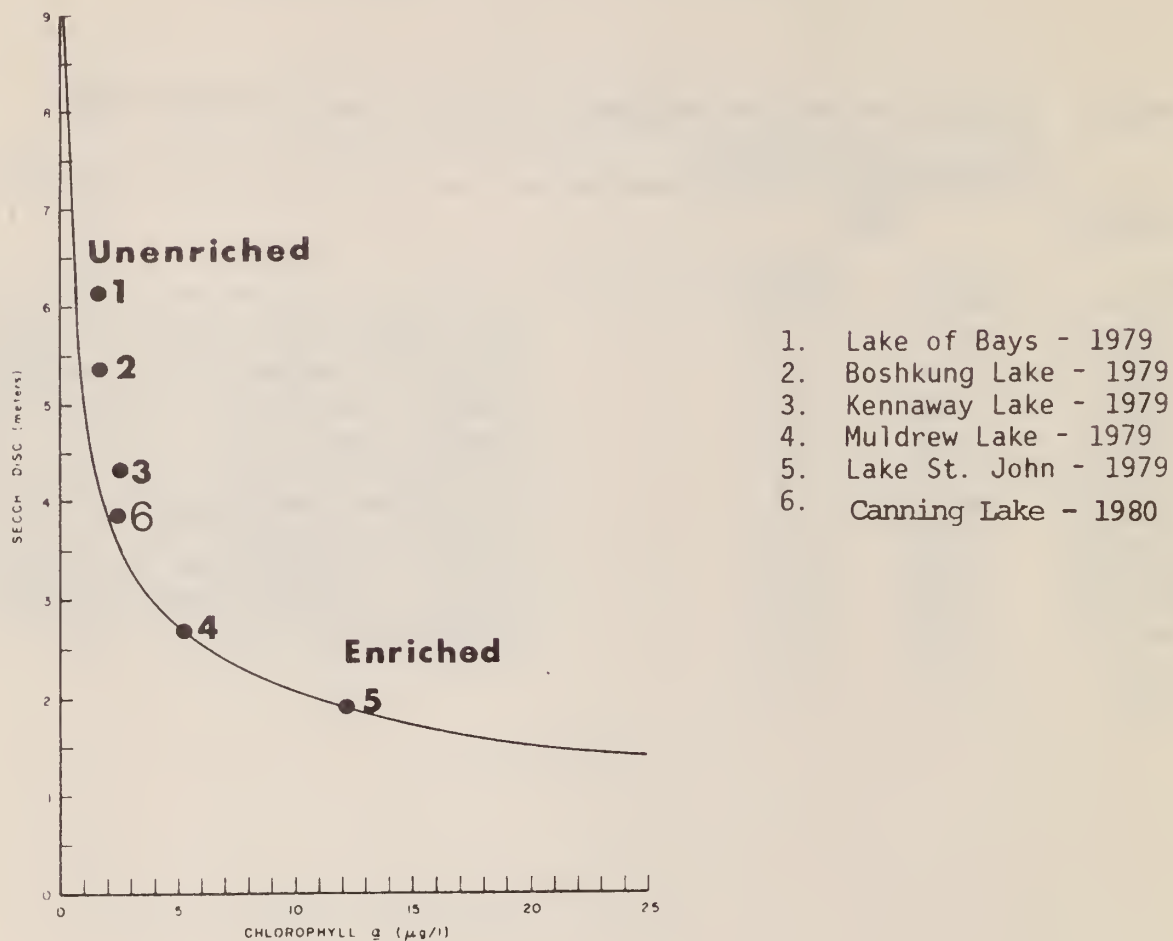
Station	Main	
Date	S.D.	Chl.a
June 30	2.90	3.0
July 6	4.27	3.1
July 13	4.41	2.2
July 22	3.20	1.8
July 27	3.80	1.5
Aug. 4	4.60	2.1
Aug. 10	3.20	1.4
Aug. 18	3.66	2.3
Aug. 24	3.81	2.1
Sept. 1	<u>4.27</u>	<u>3.5</u>
Mean	3.8	2.3

The Secchi disc readings varied from 2.9 to 4.6 metres during the sampling period. Chlorophyll a concentrations varied from 1.4 to 3.5 ug/L. Based on the seasonal means for the two parameters measured, Canning Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Canning Lake from 1972 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972	4.6	3.0
1973	5.6	1.8
1974	4.8	1.6
1975	4.9	1.6
1976	5.6	1.9
1977	5.5	- -
1978	4.4	2.3
1979	4.3	2.4
1980	3.8	2.3

Figure 1: The relationship between Secchi disc and chlorophyll a for Canning Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last nine years, the seasonal mean Secchi disc reading ranged from 3.8 to 5.6 metres and the chlorophyll a concentration ranged from 1.6 to 3.0 $\mu\text{g/L}$. Conditions in Canning Lake have experienced only minor variations, indicating a stable lake condition. Continued participation in this programme is recommended to determine if this condition persists.

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CHANDOS LAKE

Township of Chandos

County of Peterborough

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Chandos Lake in 1980

Station	South End		Gilmour Bay		
Date	S.D.	Chl.a	S.D.	Chl.a	
June 1	3.20	3.6	3.6	4.4	Mean values of the two parameters shown in Table 1 indicate that the main part of Chandos Lake is moderately enriched with moderate algal densities while Gilmour Bay is moderately enriched with high algal densities and a moderate degree of water transparency.
July 1	3.35	2.2	3.5	2.7	
July 31	3.80	2.1	3.2	6.7	
Aug. 27	<u>3.51</u>	<u>2.1</u>	<u>3.2</u>	<u>5.4</u>	
Mean	3.5	2.5	3.4	4.8	

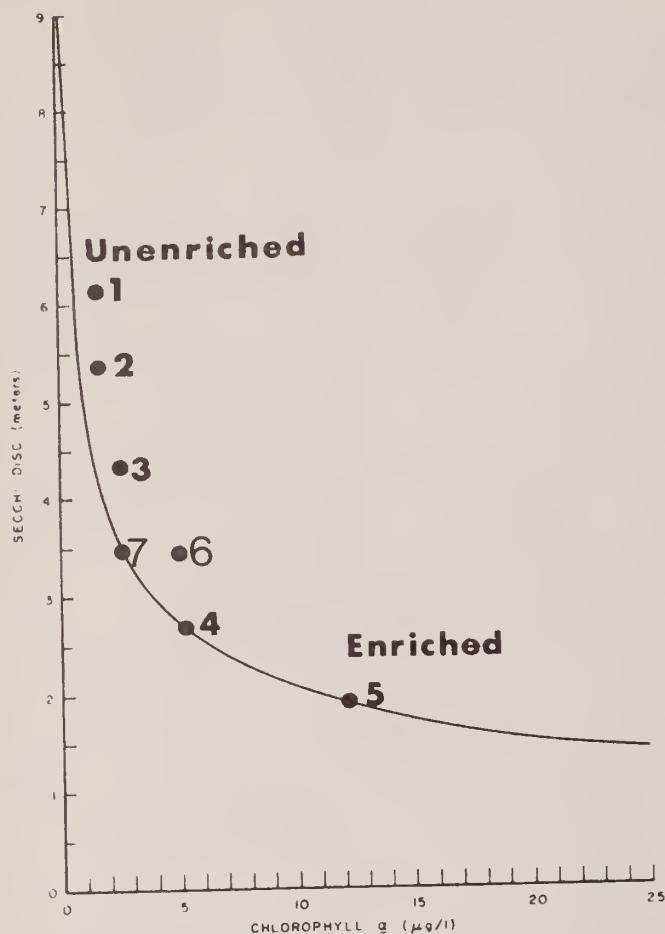
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Chandos Lake from 1972 to 1980

Station	South Bay (1)		Gilmour Bay		North End		South End	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971								
*1972	3.6	2.0						
**1973	4.9	1.7						
*1974	4.0	1.2						
T1975	5.2	2.3						
1976	4.0	2.2	3.3	5.2				
1977	4.6	- -	4.4	- -				
1978	4.1	2.6	4.1	4.4	4.1	2.6	4.3	2.7
1979	- -	- -	3.0	3.9	- -	- -	3.5	2.2
1980	- -	- -	3.4	4.8	- -	- -	3.5	2.5

* Mean of 4 Stations ** Mean of 3 Stations T Based on 1 Set of data.

Figure 1:

The relationship between Secchi disc and chlorophyll a for Chandos Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Chandos Lake (G.B.) - 1980
7. Chandos Lake (S.E.) - 1980

No trend is apparent in the data shown in Table 2. Continued participation in the sampling program is encouraged to permit definition of long term trends.

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CLEAR LAKE

Town of Bracebridge

District Municipality of Muskoka

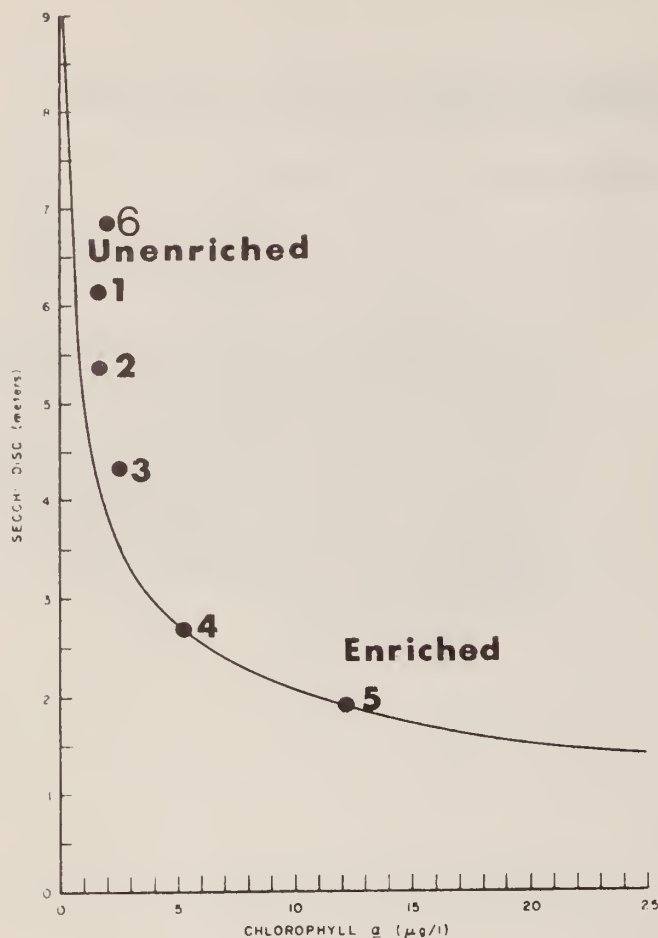
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Clear Lake in 1980

Station	1 Main		
Date	S.D.	Chl.a	
May 4	7.8	1.1	The Secchi disc readings varied from 5.1 to 8.8 metres during the sampling period. Chlorophyll a concentrations varied from 1.0 to 3.1 ug/L. Based on the seasonal means for the two parameters monitored, Clear Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.
May 25	6.0	2.0	
June 1	8.5	2.0	
June 15	6.2	1.8	
July 1	5.1	- -	
Aug. 8	6.5	2.8	
Aug. 17	6.5	3.1	
Sept. 15	8.8	1.0	
Oct. 13	<u>6.0</u>	<u>2.1</u>	
Mean	6.8	2.0	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Clear Lake from 1977 to 1980

Station	Main		
Year	S.D.	Chl.a	
1971			
1972			
1973			
1974			
1975			
1976			
1977	7.1	- -	
1978	6.6	1.5	
1979	7.1	2.3	
1980	6.8	2.0	

Figure 1: The relationship between Secchi disc and chlorophyll a for Clear Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Clear Lake - 1980

During the last four years, the seasonal mean Secchi disc reading ranged from 6.6 to 7.1 metres. The chlorophyll a concentration ranged from 1.5 to 2.3 ug/L. Conditions in Clear Lake have shown only minor variations since 1977, however, continued participation in this programme is recommended to determine if this condition persists.

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CLEARWATER LAKE

Town of Gravenhurst

District Municipality of Muskoka

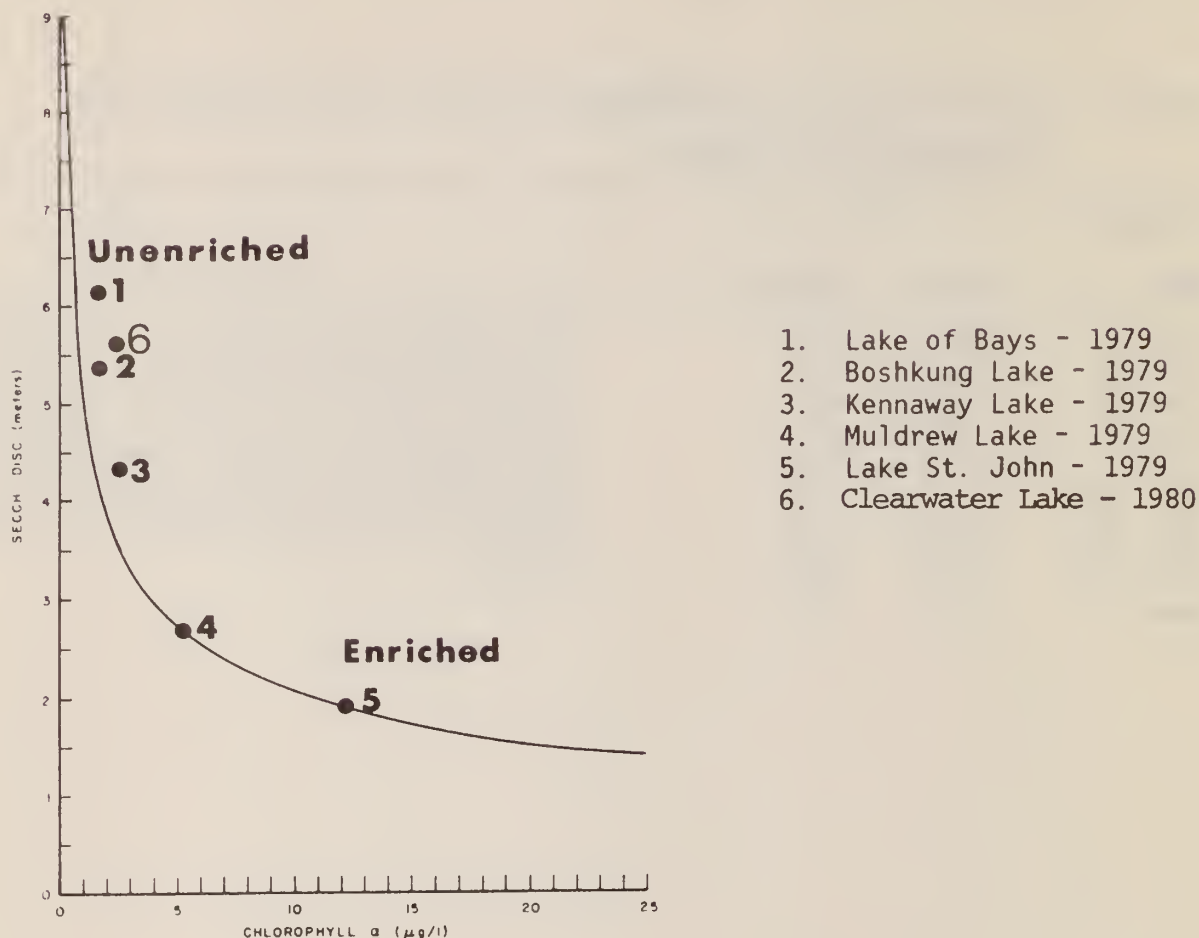
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Clearwater Lake in 1980

Station 1			
Date	S.D.	Chl.a	
May 19	5.0	2.7	The Secchi disc readings varied from 4.5 - 7.0 metres and chlorophyll <u>a</u> concentrations varied from 1.6 - 3.4 ug/L. Based on the seasonal means for these two parameters, Clearwater Lake would be considered unenriched, characterized by a high degree of water transparency and moderate densities of suspended algae.
June 1	5.0	2.2	
June 16	5.0	3.2	
July 7	4.5	3.4	
Aug. 4	6.5	2.3	
Aug. 19	7.0	1.6	
Aug. 31	6.0	2.9	
Sept. 15	<u>6.0</u>	<u>2.3</u>	
Mean	5.6	2.6	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Clearwater Lake from 1975 to 1980

Station 1		
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975	4.3	1.5
1976	5.4	1.8
1977	5.3	- -
1978	5.9	2.5
1979	5.5	3.4
1980	5.6	2.6

Figure 1: The relationship between Secchi disc and chlorophyll a for Clearwater Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last six years, the seasonal mean Secchi disc reading ranged from 4.3 to 5.9 metres. The chlorophyll a concentration ranged from 1.5 to 3.4 ug/L. There has been a decrease in the seasonal mean chlorophyll a concentration from 1979 levels due mainly to the absence of the high chlorophyll a concentration observed on Aug. 19, 1979. It is recommended that participation in this program be continued to determine future trends in the water quality of Clearwater Lake.

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CORDOVA LAKE

Township of Belmont

County of Peterborough

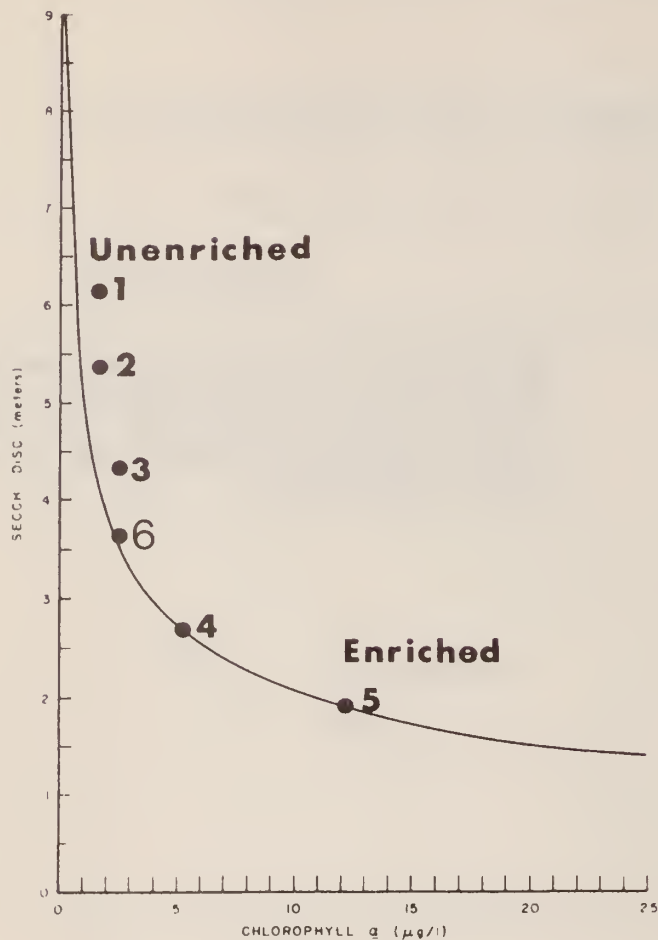
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Cordova Lake in 1980

Station 1			
Date	S.D.	Chl.a	
July 1	2.75	3.70	The average values of the two parameters shown in Table 1 indicated that Cordova Lake is moderately enriched with moderate algal densities and a moderate degree of water transparency.
July 7	2.75	3.70	
July 31	3.25	0.90	
Aug. 7	3.75	2.20	
Aug. 12	4.00	2.30	
Aug. 25	<u>5.5</u>	<u>1.3</u>	
Mean	3.7	2.4	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Cordova Lake in 1977, 1979 & 1980

Station 1		
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975		
1976		
1977	4.3	- -
1978		
1979	4.0	1.2
1980	3.7	2.4

Figure 1: The relationship between Secchi disc and chlorophyll a for Cordova Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Cordova Lake - 1980

No year to year trend is discernible from the data collected to date. Continued participation in the program is suggested so that long term trends can be defined.

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CREGO LAKE

Township of Somerville

County of Victoria

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Crego Lake in 1980

Station	Main		
Date	S.D.	Chl.a	
June 22	3.5	3.1	Insufficient samples were taken to draw meaningful conclusions about the enrichment status of Crego Lake. It is recommended that six sets of samples be taken throughout the season in order to get a reliable seasonal mean. Based on the mean values obtained for the two parameters monitored, Crego Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.
July 20	- -	2.4	
Aug. 3	3.0	1.9	
Aug. 24	<u>4.75</u>	<u>4.8</u>	
Mean	3.8	3.1	

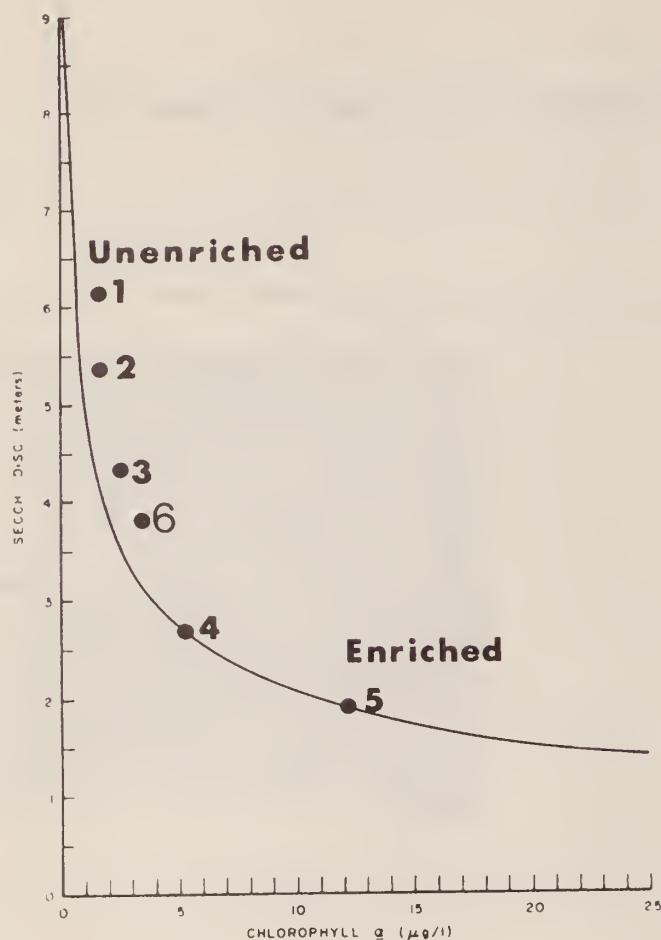
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Crego Lake in 1977, 1978 , 1979 & 1980

Station	Main		
Year	S.D.	Chl.a	
1971			
1972			
1973			
1974			
1975			
1976			
1977	4.0	- -	
1978	4.3	3.7	
1979	4.8	3.4	
1980	3.8 *	3.1 **	

* based on 3 samples

** based on 4 samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Crego Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
- * 6. Crego Lake - 1980

* not reliable seasonal means

Continued participation in the program with more frequent sampling is encouraged.

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CRYSTAL LAKE

Township of Galway

County of Peterborough

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Crystal Lake in 1980

Station	A		B		C		D	
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
Sept. 7	6.0	3.1	5.5	3.3	6.0	4.2	5.0	2.5

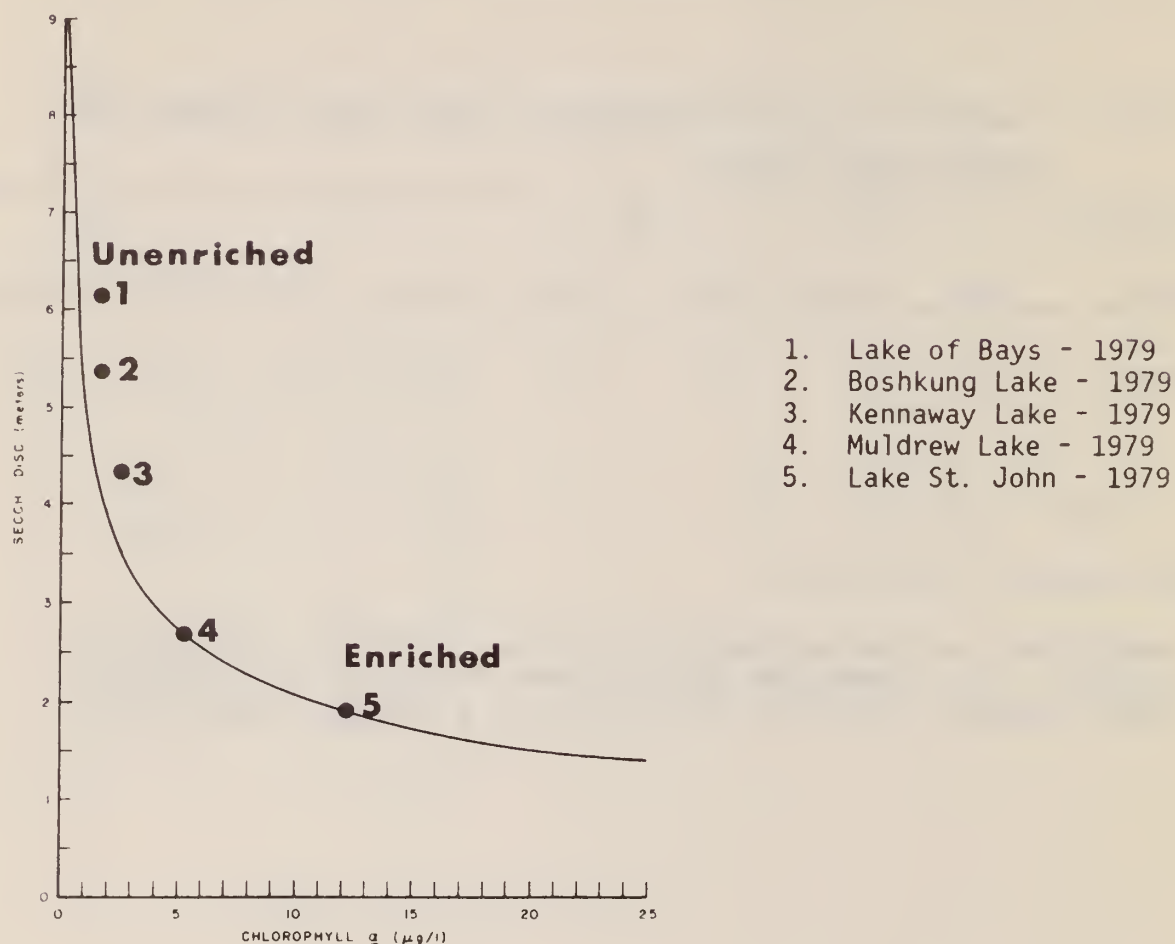
Insufficient data was collected to allow any meaningful conclusions to be made. It is recommended that six sets of samples per station be taken throughout the season in order to get a reliable seasonal mean.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Crystal Lake in 1977, 1978, 1979 & 1980

Station	A		B		C		D	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
1971								
1972								
1973								
1974								
1975								
1976								
1977	4.5	--	4.3	--	5.1 *	--	4.2	--
1978	5.4	2.7	4.8	3.1	5.4	4.0	3.8	3.6
1979	5.4	2.3	5.2	3.6	4.8	2.1	4.8	2.2
1980	--	--	--	--	--	--	--	--

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Crystal Lake and a number of recreational lakes in the province. All data are seasonal means.



More frequent sampling is required to permit conclusions on the long term trends in enrichment status of Crystal Lake.

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DOESKIN LAKE

Town of Gravenhurst

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Doeskin Lake in 1980

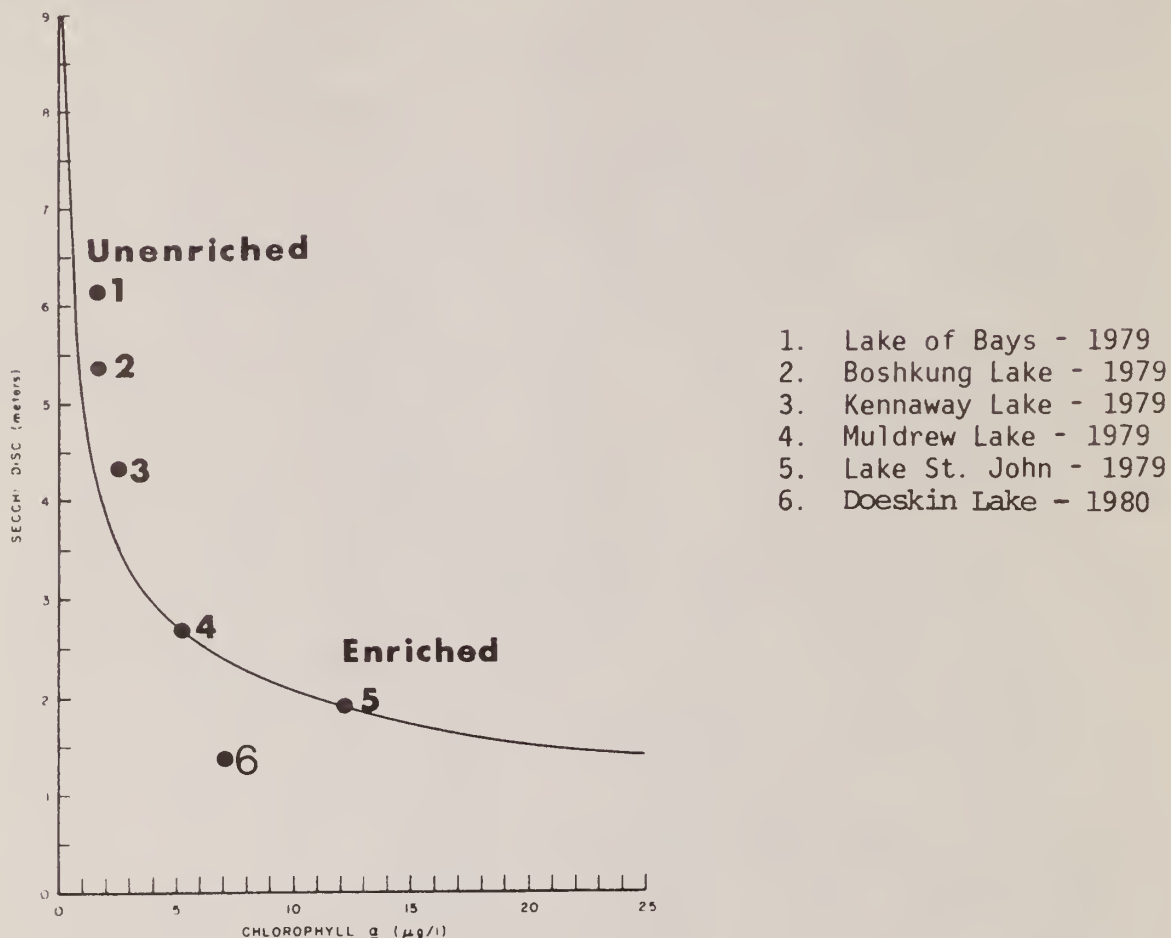
Station	Main	
Date	S.D.	Chl.a
June 30	1.5	8.7
July 6	1.25	6.8
July 13	1.50	5.6
July 20	1.50	5.7
July 28	1.50	3.8
Aug. 3	- -	7.3
Aug. 10	1.0	6.4
Aug. 17	1.0	9.4
Aug. 24	1.0	9.2
Mean	1.3	7.0

Secchi disc readings varied from 1.0 to 1.5 metres and chlorophyll a concentrations varied from 3.8 to 9.4 ug/L. Secchi disc readings showed little variation but chlorophyll a concentrations showed a great deal of variation with the highest concentrations occurring in late August. This could be due to an "algae bloom". Based on the seasonal means for these two parameters, Doeskin Lake would be considered enriched, characterized by a low degree of water transparency and high densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Doeskin Lake from 1978 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	1.2	4.5
1979	- -	11.0
1980	1.3	7.0

Figure 1: The relationship between Secchi disc and chlorophyll a for Doeskin Lake and a number of recreational lakes in the province. All data are seasonal means.



The last three years of available data are insufficient to determine if there has been any alteration in the status of Doeskin Lake. The seasonal mean chlorophyll a concentration ranges considerably from 4.5 to 11.0 $\mu\text{g/L}$. The reason for this is not yet apparent. It is recommended that this programme be continued to determine future trends in water quality.

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DRAG LAKE

Dudley and Dysart Townships

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Drag Lake in 1980

Station	Main	
Date	S.D.	Chl. <u>a</u>
July 1	6.09	A
July 13	6.09	1.5
July 27	5.50	3.2
Aug. 4	5.80	1.5
Aug. 10	6.09	A
Aug. 17	5.79	3.1
Aug. 24	5.79	1.7
Sept. 5	<u>5.49</u>	<u>2.0</u>
Mean	5.8	2.2

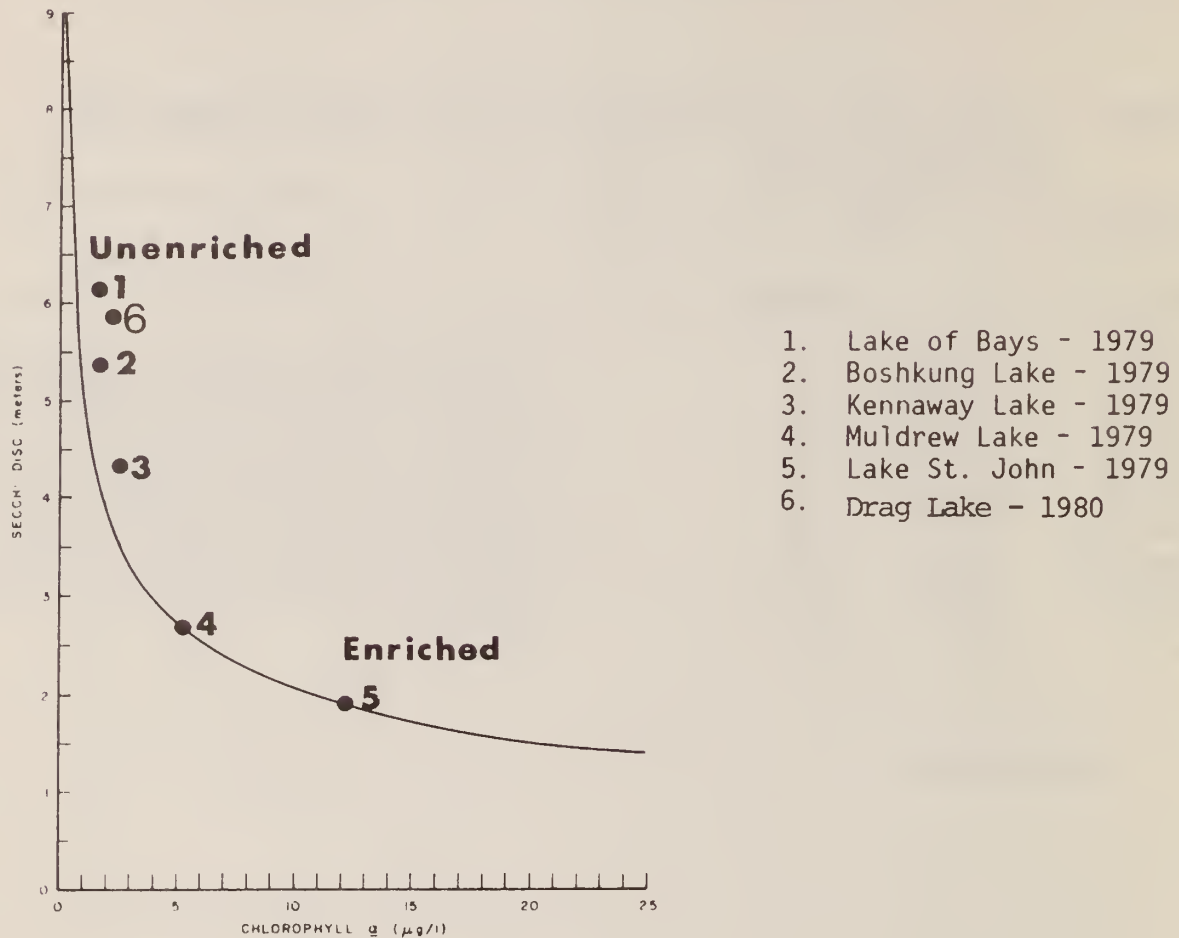
The Secchi disc readings varied from 5.49 to 6.09 metres during the sampling period. The chlorophyll a concentrations varied from 1.5 to 3.2 ug/L. Based on the seasonal means for these two parameters, Drag Lake would be considered unenriched with a high degree of water transparency and moderately low densities of suspended algae.

A - lab accident

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Drag Lake from 1973 to 1980

Station	Main	
Year	S.D.	Chl. <u>a</u>
1971		
1972		
1973	6.0	2.9
1974	6.2	0.6
1975	6.8	1.4
1976	5.8	2.4
1977	6.4	- -
1978	6.3	1.7
1979	5.9	2.3
1980	5.8	2.2

Figure 1: The relationship between Secchi disc and chlorophyll a for Drag Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last eight years, the seasonal mean Secchi disc reading ranged from 5.8 to 6.8 metres. The seasonal mean chlorophyll a concentration ranged from 0.6 to 2.9 $\mu g/L$. The amount of variation from year to year is minimal and shows no general trend so the condition of Drag Lake appears to be stable. It is recommended that this programme be continued to determine if this condition persists.

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DUMMER LAKE

Township of Dummer

County of Peterborough

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Dummer Lake in 1980

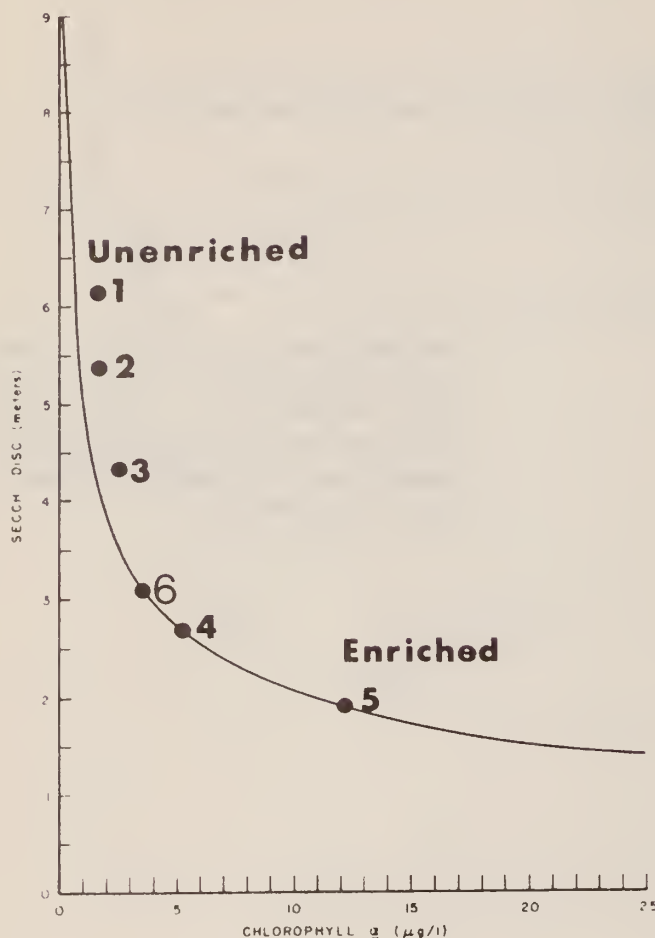
Station 1			
Date	S.D.	Chl.a	
May 19	3.0	3.2	The average values of the two parameters shown in Table 1 indicate that Dummer Lake is moderately enriched with moderate algal densities a moderate degree of water transparency.
June 1	3.0	5.2	
Aug. 4	3.0	2.1	
Sept. 1	3.0	4.3	
Sept. 7	3.0	3.7	
Sept. 21	3.0	3.5	
Sept. 28	3.5	3.7	
Oct. 13	<u>3.6</u>	<u>2.6</u>	
Mean	3.1	3.5	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Dummer Lake in 1978, 1979 & 1980

Station 1		
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	3.2 (*3.8)	2.8 (*3.9)
1979	3.2	3.7
1980	3.1	3.5

* Mean values from MOE/7 Links Water Quality Survey 1978.

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Dummer Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Dummer Lake - 1980

No trend in enrichment status for Dummer Lake is apparent in the three years of data recorded in Table 2. Continued participation in the sampling program is encouraged.

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EAST LAKE

Harcourt Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from East Lake in 1980

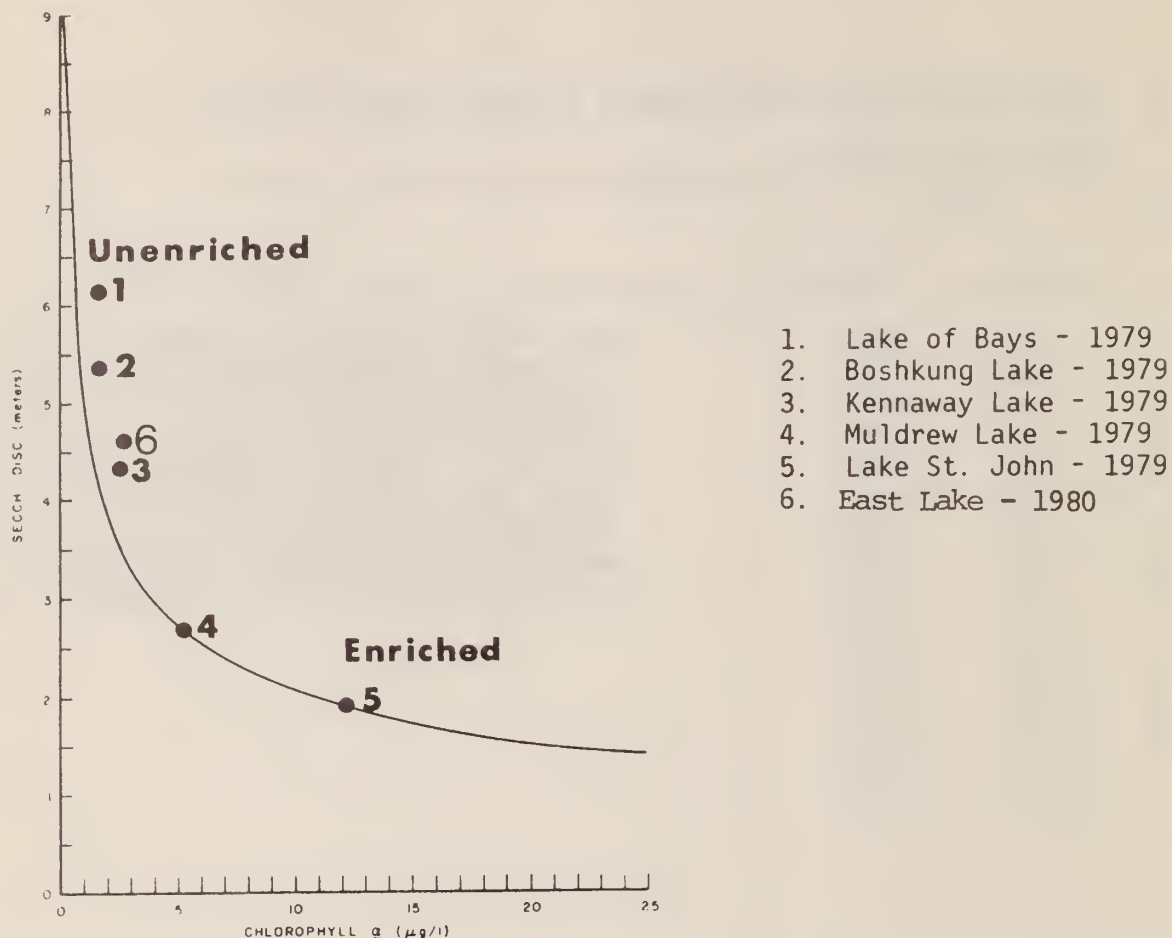
Station	Main	
Date	S.D.	Chl.a
June 1	4.0	4.2
June 8	4.5	2.6
June 15	5.0	2.2
June 22	4.5	- -
June 29	5.0	3.5
July 6	4.75	3.6
July 13	4.25	3.9
July 20	4.0	3.2
July 27	4.5	2.1
Aug. 4	4.5	2.2
Aug. 10	5.0	2.4
Aug. 17	5.0	2.7
Aug. 24	5.0	1.9
Sept. 1	<u>5.0</u>	<u>2.0</u>
Mean	4.6	2.8

The Secchi disc readings varied from 4.0 - 5.0 metres during the sampling period. Chlorophyll a concentrations exhibited greater variability, ranging from 1.9 to 4.2 ug/L. Based on seasonal means for these two parameters, East Lake would be considered as moderately enriched with a moderate degree of water transparency and moderate densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from East Lake from 1971 to 1980

Station	Main	
Year	S.D.	Chl.a
1971	4.3	2.7
1972	- -	- -
1973	5.0	1.9
1974	3.6	1.5
1975	4.2	2.2
1976	4.2	2.3
1977	4.2	- -
1978	4.6	2.3
1979	4.6	2.7
1980	4.6	2.8

Figure 1: The relationship between Secchi disc and chlorophyll a for East Lake and a number of recreational lakes in the province. All data are seasonal means.



In the nine years that this lake has been sampled under this programme, seasonal mean Secchi disc readings have been relatively constant ranging from 3.6 to 5.0 metres. The seasonal mean chlorophyll a concentrations have also been relatively constant, ranging from 1.5 to 2.8 $\mu g/L$. This indicates that East Lake is in a stable condition. It is recommended that this programme be continued to determine if this condition persists.

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ECHO LAKE

Township of Lake of Bays

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Echo Lake in 1980

Station	1		2		3		4	
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
June 30	3.0	0.8	3.0	0.6	4.0	3.3	3.0	2.0
Aug. 4	0.76	4.6	.76	2.8	.76	1.8	0.76	1.8

Since samples were collected on only two occasions, it is difficult to obtain an accurate assessment of Echo Lake's enrichment status. It is recommended that at least six sets of samples be taken throughout the season in order to obtain a reliable seasonal mean for the two parameters monitored.

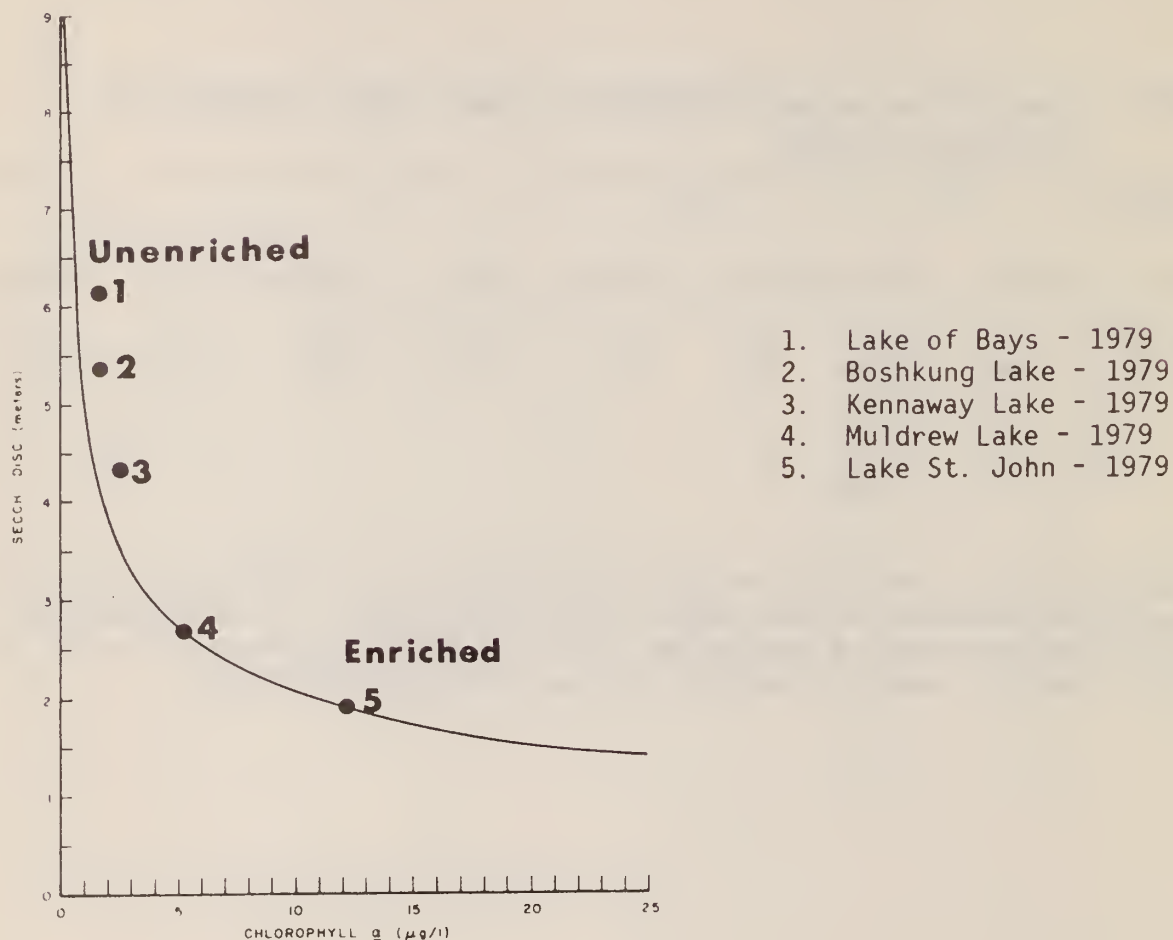
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Echo Lake from 1980

Station	1		2		3		4	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>

1971
1972
1973
1974
1975
1976
1977
1978
1979
1980

-- -- -- -- -- -- -- --

Figure 1: The relationship between Secchi disc and chlorophyll a for Echo Lake and a number of recreational lakes in the province. All data are seasonal means.



If participation in this programme is to continue, the sampling frequency must be increased in order to obtain meaningful data regarding Echo Lake's enrichment status.

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FARLAIN LAKE

Tiny Township

Simcoe County

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Farlain Lake in 1980

Station	Main	
Date	S.D.	Chl.a
May 11	*BTM	1.4
May 19	*BTM	2.8
May 25	*BTM	2.4
June 1	*BTM	2.3
June 30	*BTM	1.5
Aug. 3	4.0	1.2
Sept. 1	3.0	3.5
Oct. 5	*BTM	2.2
Mean	- -	2.2

Since the Secchi disc was still visible on the bottom of the lake on most sampling dates, it is impossible to obtain a representative seasonal mean value for this parameter. The chlorophyll a concentrations ranged from 1.2 to 3.5 ug/L during the sampling period. Highest concentrations were measured in September. Based on the information available, Farlain Lake would be considered between unenriched and moderately enriched, characterized by moderately low densities of suspended algae and a moderately high degree of water transparency.

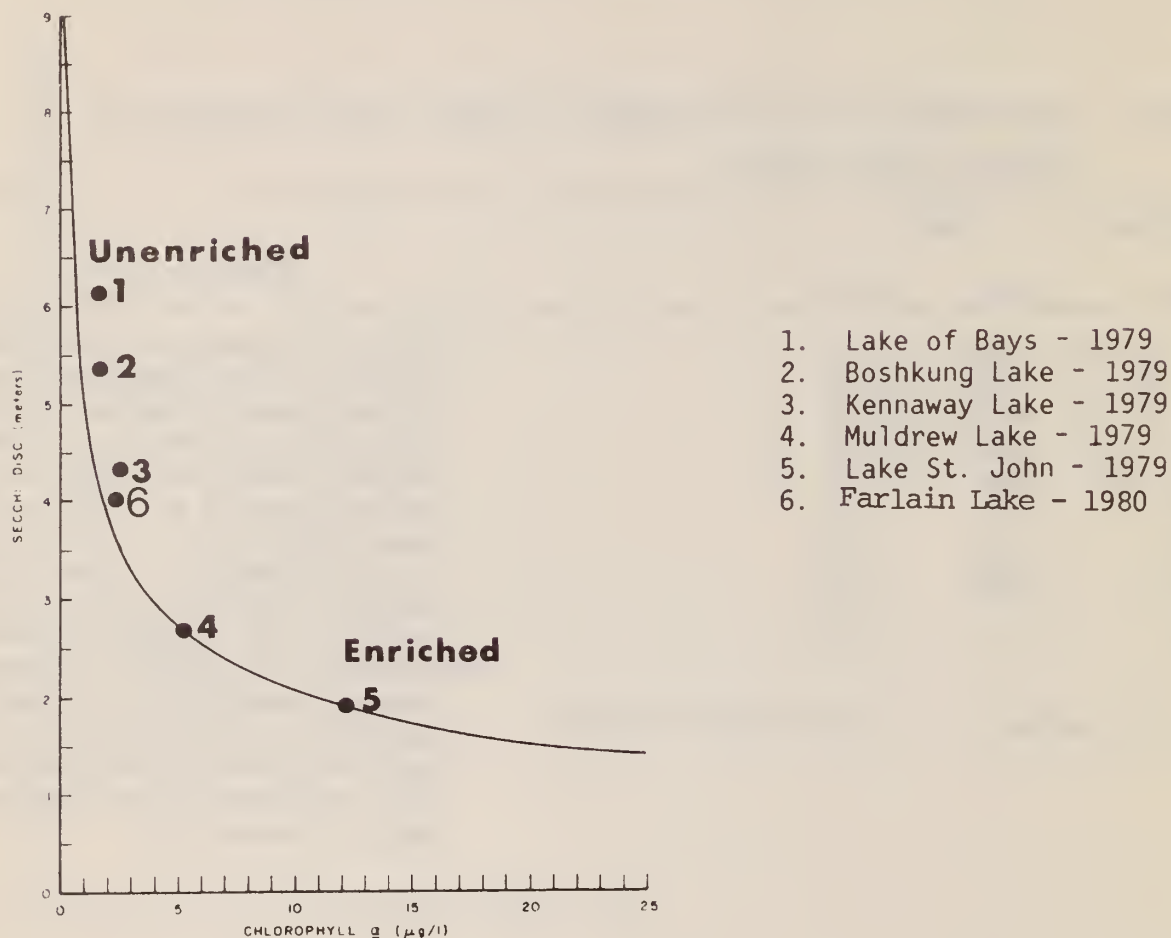
* BTM - bottom: 3 - 4 metres approximately

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Farlain Lake for 1973, 1978, 1979 and 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
*1973	3.9	2.2
1974		
1975		
1976		
1977		
1978	3.7	2.3
1979	- -	1.7
1980	- -	2.2

*MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Farlain Lake and a number of recreational lakes in the province. All data are seasonal means.



The four years of available data on Farlain Lake indicate that there has been no major change in the seasonal mean Secchi disc reading or chlorophyll a concentration. This would indicate a stable lake condition. It is recommended that this programme be continued to determine if this condition persists.

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GEORGE'S LAKE

Harcourt Township

Provisional County of Haliburton

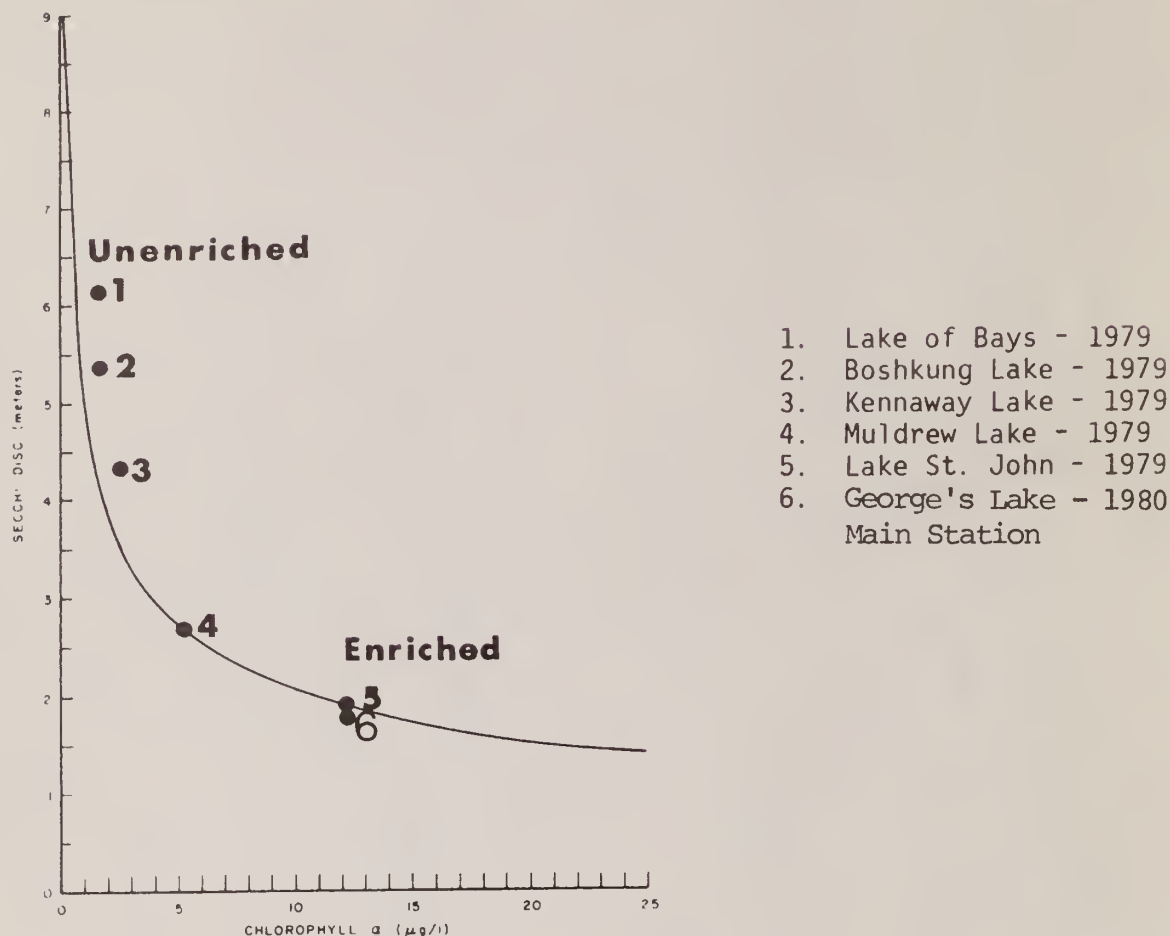
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from George's Lake in 1980

Station	Main		
Date	S.D.	Chl.a	
May 19	2.75	14.8	The Secchi disc reading varied from 1.5 to 2.75 metres and the chlorophyll a concentrations exhibited greater variability ranging from 6.3 to 22.6 ug/L. The high concentration of chlorophyll a measured on June 1, 1980 was probably due to an "algae bloom". Based on the seasonal means for these two parameters, George's Lake would be considered enriched, characterized by a low degree of water transparency and high densities of suspended algae.
June 1	2.0	22.6	
June 8	2.0	--	
June 22	1.5	10.0	
June 29	1.5	9.8	
July 6	1.5	8.5	
July 13	2.0	6.3	
Aug. 17	<u>1.5</u>	<u>13.0</u>	
Mean	1.8	12.1	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from George's Lake from 1973 to 1980

Station	Main		"O"	
Year	S.D.	Chl.a	S.D.	Chl.a
1971				
1972				
1973	2.2	5.8	--	--
1974	2.3	3.0	2.2	3.9
1975	2.5	10.2	2.0	6.4
1976	2.6	7.2	--	--
1977	2.8	--	--	--
1978	2.6	10.3	--	--
1979	2.5	10.7		
1980	1.8	12.1		

Figure 1: The relationship between Secchi disc and chlorophyll a for George's Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last eight years, the seasonal mean Secchi disc reading exhibited minimal variation ranging from 1.8 to 2.8 metres. The seasonal mean chlorophyll a concentration exhibited greater variation ranging from 3.0 to 12.1 ug/L. In 1980, there seems to have been a decrease in water transparency and an increase in chlorophyll a concentration. It is recommended that this programme be continued to determine if this trend continues.

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GIBSON LAKE

Township of Georgian Bay

District Municipality of Muskoka

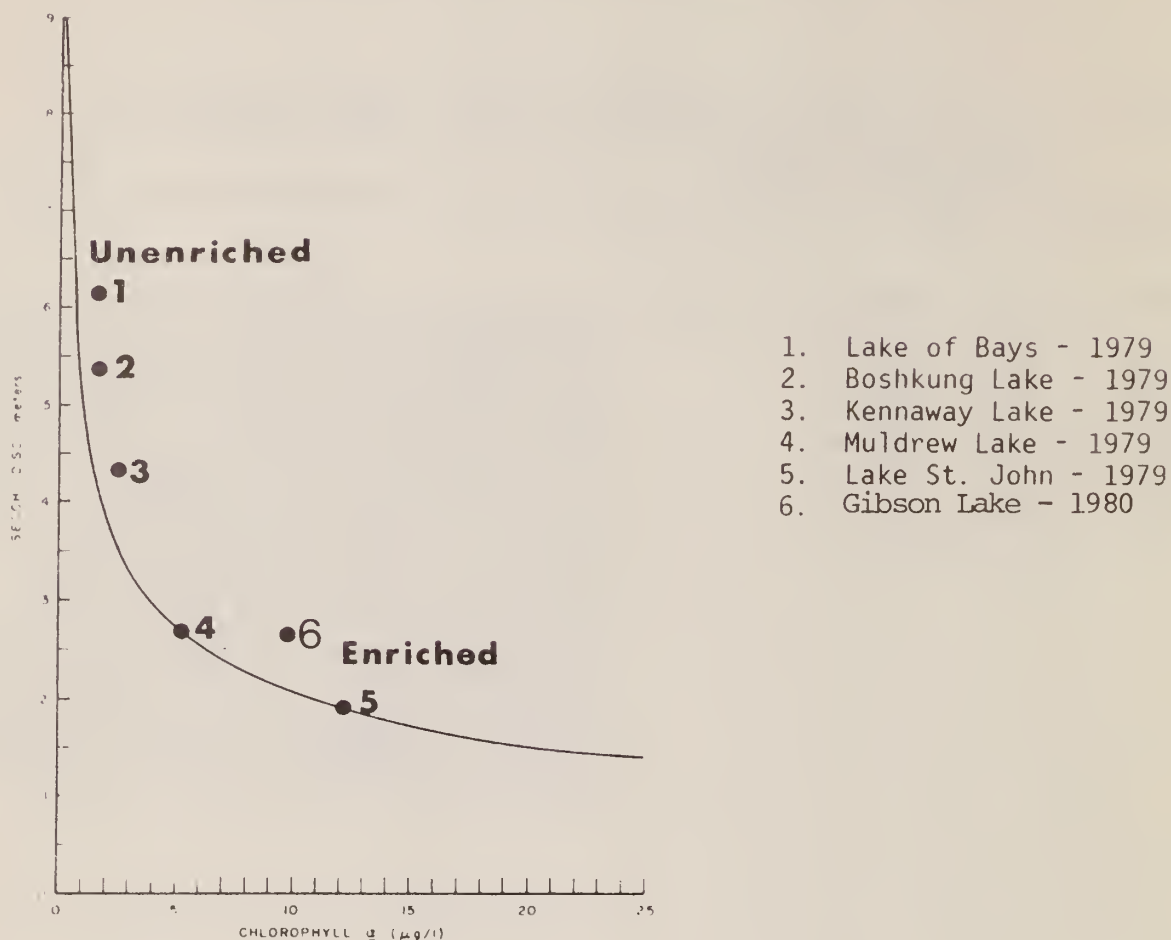
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Gibson Lake in 1980

Station		A	
Date	S.D.	Chl.a	
May 25	3.0	22.5	The Secchi disc readings varied from 2.0 to 3.0 metres and the chlorophyll a concentrations varied from 4.1 to 22.5 ug/L. There is some question as to whether the concentration for May 25, 1980 is correct as it appears to be uncharacteristically high. It could be the result of an "algae bloom" but in that case we would expect the Secchi disc reading to be much lower. Based on the seasonal means for the two parameters monitored, Gibson Lake would be considered enriched even if the high chlorophyll a concentration was ignored. It is characterized by a low degree of water transparency and high densities of suspended algae.
July 12	3.0	4.1	
Aug. 1	2.0	7.1	
Aug. 24	<u>2.5</u>	<u>5.7</u>	
Mean	2.6	9.9	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Gibson Lake from 1978 to 1980

Station		A	
Year	S.D.	Chl.a	
1971			
1972			
1973			
1974			
1975			
1976			
1977			
1978	3.5	3.8	
1979	3.4	4.7	
1980	2.6	9.9	

Figure 1: The relationship between Secchi disc and chlorophyll a for Gibson Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last three years, the seasonal means for Secchi disc readings ranged from 2.6 to 3.5 metres and chlorophyll a concentrations ranged from 3.8 to 9.9 ug/L. The three years of available data on Gibson Lake is not sufficient to draw meaningful conclusions regarding any possible changes in enrichment status. In 1980, Gibson Lake was sampled on only four occasions. It is recommended that more frequent sampling be done in order to get a more reliable assessment of changes in water quality status in Gibson Lake. This programme should be continued in order to determine if the enrichment status of Gibson Lake is changing.

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GO HOME LAKE

Township of Georgian Bay

District Municipality of Muskoka

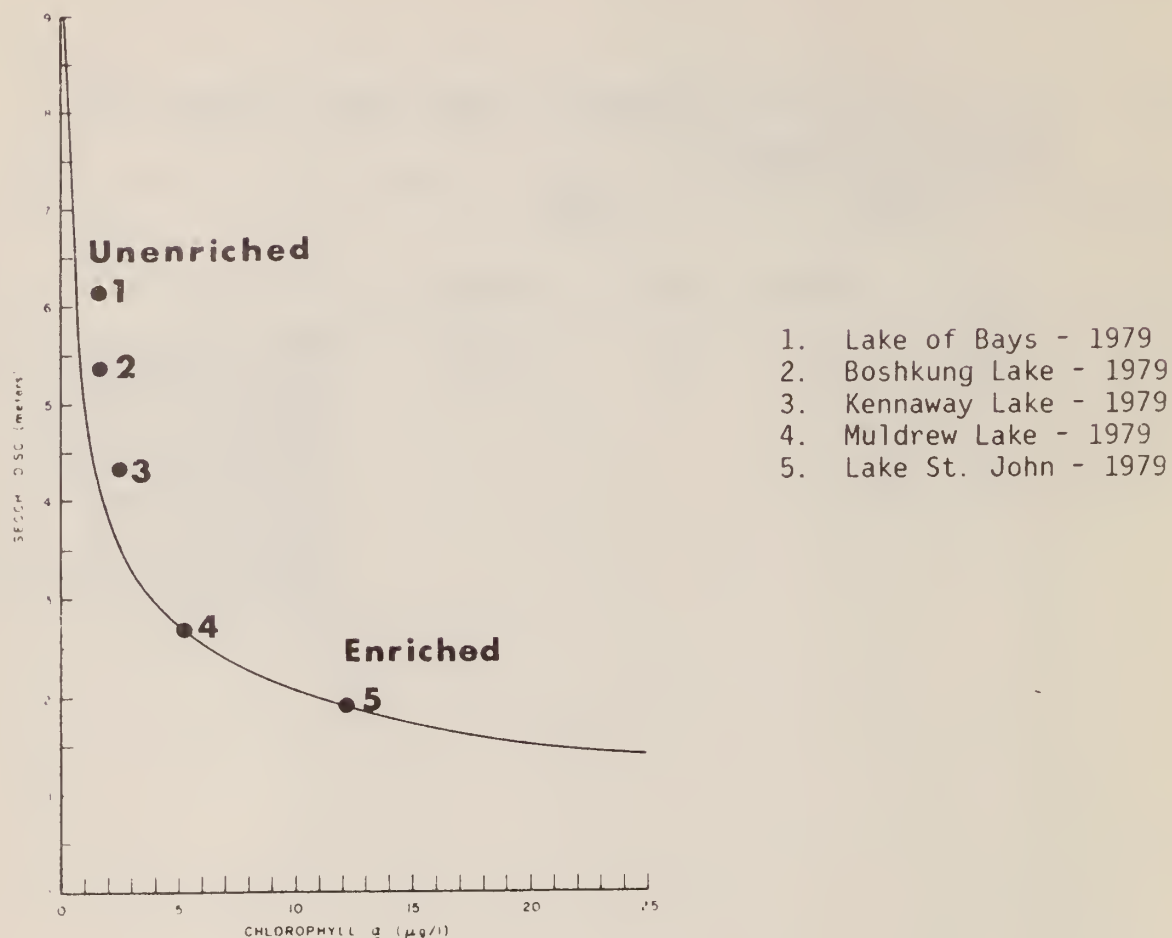
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Go Home Lake in 1980

Station	"A" North		"B" South		
	S.D.	Chl.a	S.D.	Chl.a	
May 25	4.0	2.2	4.0	1.8	Since samples were collected on only two occasions, it is difficult to obtain an accurate assessment of the enrichment status of Go Home Lake. It is recommended that six sets of samples be taken throughout the season in order to get a reliable seasonal mean.
Aug. 12	4.5	1.9	4.5	1.8	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Go Home Lake in 1971, 1976, 1977 and 1979

Station	A (North)		B (South)	
	S.D.	Chl.a	S.D.	Chl.a
1971	3.6	1.4		
1972				
1973				
1974				
1975				
1976	5.6	1.9		
1977	6.2	--		
1978	--	--		
1979	4.6	2.6	4.8	3.2
1980	--	--	--	--

Figure 1. The relationship between Secchi disc and chlorophyll a for Go Home Lake and a number of recreational lakes in the province. All data are seasonal means.



The historical record of seasonal mean Secchi disc readings and chlorophyll a concentrations is poor. It is recommended that this programme be continued with more frequent sampling to determine if the enrichment status of Go Home Lake is changing.

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GULL LAKE

Lutterworth Township

Provisional County of Haliburton

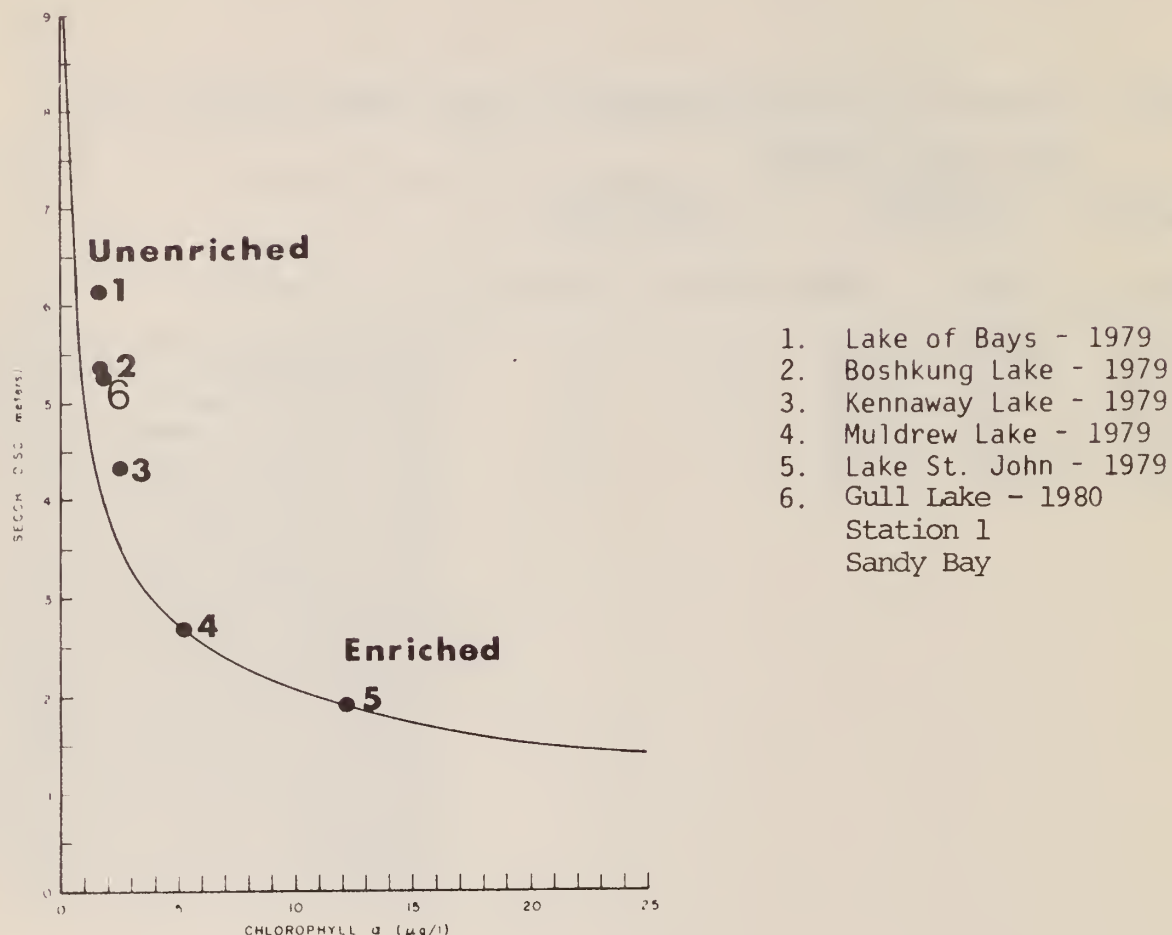
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Gull Lake in 1980

Station	¹ Sandy Bay		⁴ Miner's Bay		
Date	S.D.	Chl.a	S.D.	Chl.a	
July 20	5.50	1.3	- -	- -	Both the Secchi disc readings and the chlorophyll <u>a</u> concentrations at Sandy Bay showed very little fluctuation during the sampling period. Secchi disc readings varied from 4.75 to 5.5 metres and chlorophyll <u>a</u> concentrations varied from 1.3 to 2.5 ug/L. Based on the seasonal means for these two parameters, Sandy Bay would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae. Miner's Bay was only sampled once, so it is impossible to make an interpretation of enrichment status. It is recommended that more frequent sampling be done to obtain reliable information regarding enrichment status.
July 27	4.75	1.6	5.5	1.9	
Aug. 4	5.5	1.8	- -	- -	
Aug. 17	<u>5.25</u>	<u>2.5</u>	<u>- -</u>	<u>- -</u>	
Mean	5.3	1.8			

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Gull Lake from 1976 to 1979

Station	¹ Sandy Bay		² Deep Bay		³ Long Island		⁴ Miners Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971								
1972								
1973								
1974								
1975								
1976	5.4	1.9	3.7	1.5	5.7	2.0	5.5	2.0
1977	4.7	- -	- -	- -	5.8	- -	5.4	- -
1978	4.6	1.8	5.5	2.0	5.5	1.9	5.4	1.7
1979	5.5	2.0	6.1	2.0	5.9	2.0	5.6	2.2
1980	5.3	1.8	- -	- -	- -	- -	- -	- -

Figure 1: The relationship between Secchi disc and chlorophyll a for Gull Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last five years, the seasonal mean Secchi disc readings and chlorophyll a concentrations have exhibited very little fluctuation indicating a stable lake condition. It is recommended that this programme be continued and sampling frequency be increased in order to obtain an accurate assessment of water quality.

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HALIBURTON LAKE

Harburn Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Haliburton Lake in 1980

Station	Main (North End)		South Bay		
Date	S.D.	Chl.a	S.D.	Chl.a	
May 19	- -	1.0	2.5	3.8	The Secchi disc readings varied from 2.5 to 4.75 metres in South Bay and chlorophyll a concentrations varied from 1.8 to 16.8 ug/L. The high concentration of chlorophyll a measured on July 27, 1980 was probably due to an "algae bloom." Based on the seasonal means for South Bay, it would be considered moderately enriched, characterized by a moderate degree of water transparency, and moderately high densities of suspended algae. The Main station at the north end of the lake was sampled only four times in August and September, so the mean value is not a true
May 25	- -	- -	3.5	6.5	
June 1	- -	- -	4.0	7.0	
June 22	- -	- -	3.5	3.7	
June 29	- -	- -	3.0	1.8	
July 6	- -	- -	4.75	4.2	
July 13	- -	- -	4.20	7.0	
July 20	- -	- -	4.25	8.9	
July 27	- -	- -	3.25	16.8	
Aug. 4	6.25	3.6	2.25	5.3	
Aug. 10	6.25	2.7	- -	- -	
Aug. 17	- -	- -	2.5	5.0	
Aug. 24	6.75	3.0	3.25	3.0	
Sept. 1	6.75	2.4	3.0	4.1	
Mean	6.5	2.9	3.4	5.9	

seasonal mean. It is recommended that more frequent samples be taken at this station to get more reliable information with regard to water quality. The mean values would indicate that the Main station is unenriched, characterized by a high degree of water transparency and moderate densities of suspended algae.

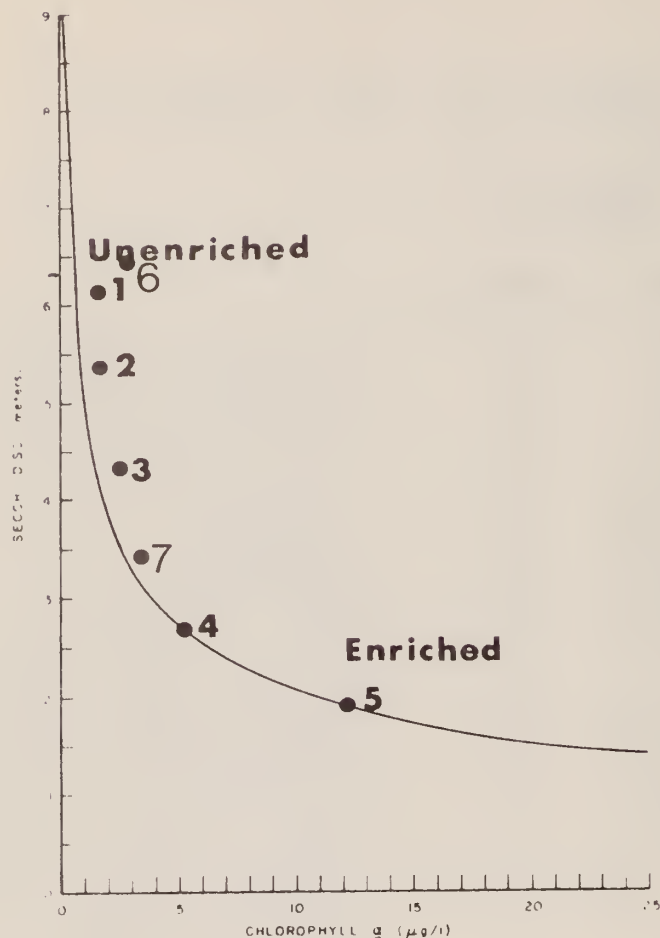
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Haliburton Lake from 1972 to 1980

Station	Main		South Bay	
Year	S.D.	Chl.a	S.D.	Chl.a
1971				
*1972	6.3	1.0	3.5	2.7
1973	6.0	1.8	- -	- -
1974	6.7	1.1	3.8	2.4
1975	6.4	2.5	3.6	3.3
1976	6.0	1.7	4.0	4.7
1977	7.6	- -	4.3	- -
1978	7.3	1.9	4.2	3.2
1979	6.5	3.4	4.1	5.3
1980	6.5**	2.9**	3.4	5.9

* MOE data - Dillon (1974)

** not a true seasonal mean - based on 4 samples only.

Figure 1: The relationship between Secchi disc and chlorophyll a for Haliburton Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Haliburton Lake - 1980
Main Station
7. Haliburton Lake - 1980
South Bay Station

During the last nine years, the seasonal mean Secchi disc readings at the Main Station ranged from 6.0 - 7.6 metres and chlorophyll a concentration ranged from 1.0 - 3.4 ug/L. The 1979 and 1980 chlorophyll a concentrations have increased over those measured in previous years. At the South Bay station the seasonal means for Secchi disc readings ranged from 3.4 to 4.3m and chlorophyll a concentrations ranged from 2.1 to 5.9 ug/L. The 1979 and 1980 chlorophyll a concentrations have increased over those measured in previous years. The reason for this increase is not apparent. It is recommended that this programme be continued in order to determine if this trend persists.

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HALLS LAKE

Stanhope Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Halls Lake in 1980

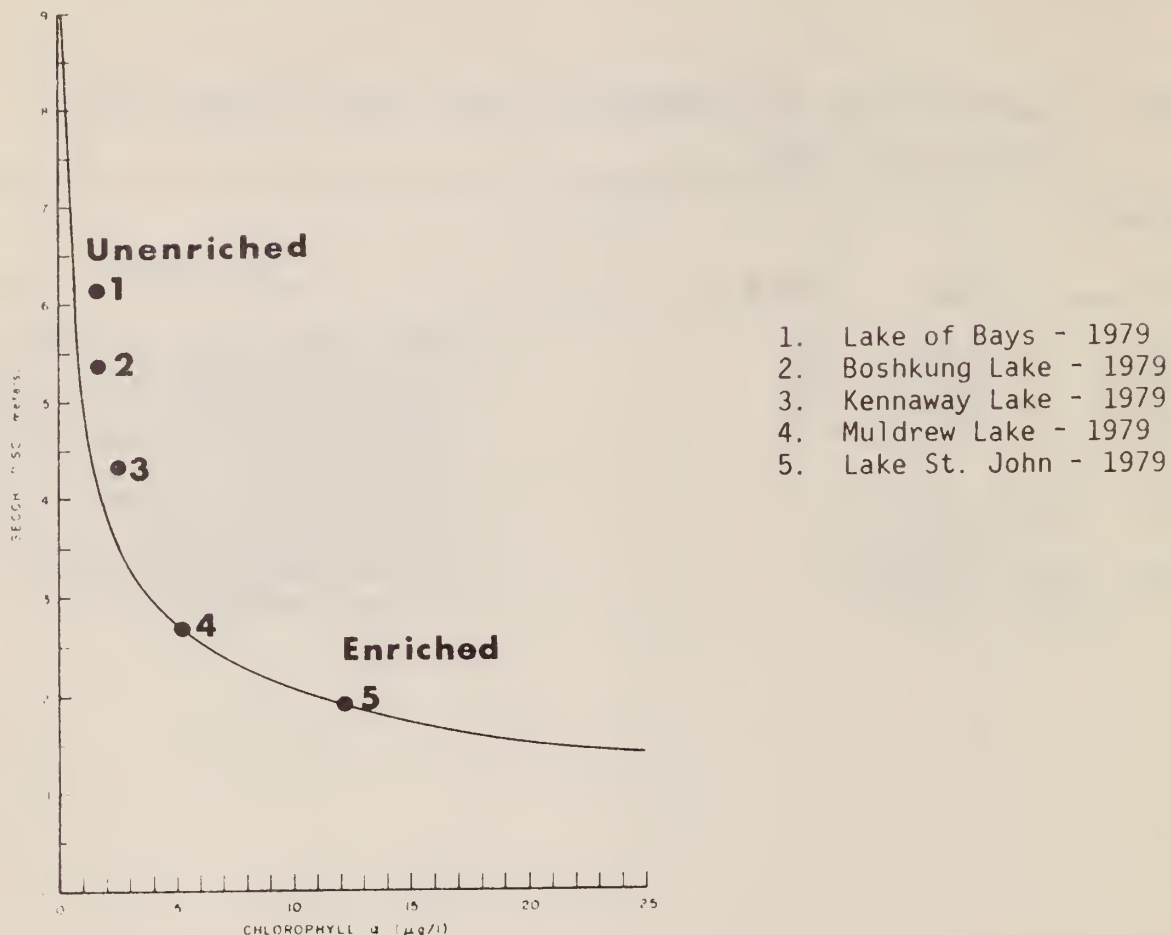
Station	1	
Date	S.D.	Chl. <u>a</u>
July 6	6.0	1.2
July 13	7.5	0.8
Aug. 24	7.5	1.6

Since samples were collected on only three occasions, it is difficult to obtain an accurate assessment of Halls Lake's enrichment status. It is recommended that six sets of samples be taken throughout the season, in order to get a reliable seasonal mean for the two parameters monitored.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Halls Lake from 1972 to 1980

Station	1	
Year	S.D.	Chl. <u>a</u>
1971		
1972	8.7	0.7
1973	7.8	0.7
1974	7.5	0.4
1975	8.4	0.6
1976	7.5	1.1
1977	8.5	- -
1978	8.6	0.9
1979	- -	- -
1980	- -	- -

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Halls Lake and a number of recreational lakes in the province. All data are seasonal means.



If participation in this programme is to be continued, the sampling frequency must be increased in order to obtain meaningful data regarding Halls Lake's enrichment status.

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HARP LAKE

Town of Huntsville

District of Municipality of Muskoka

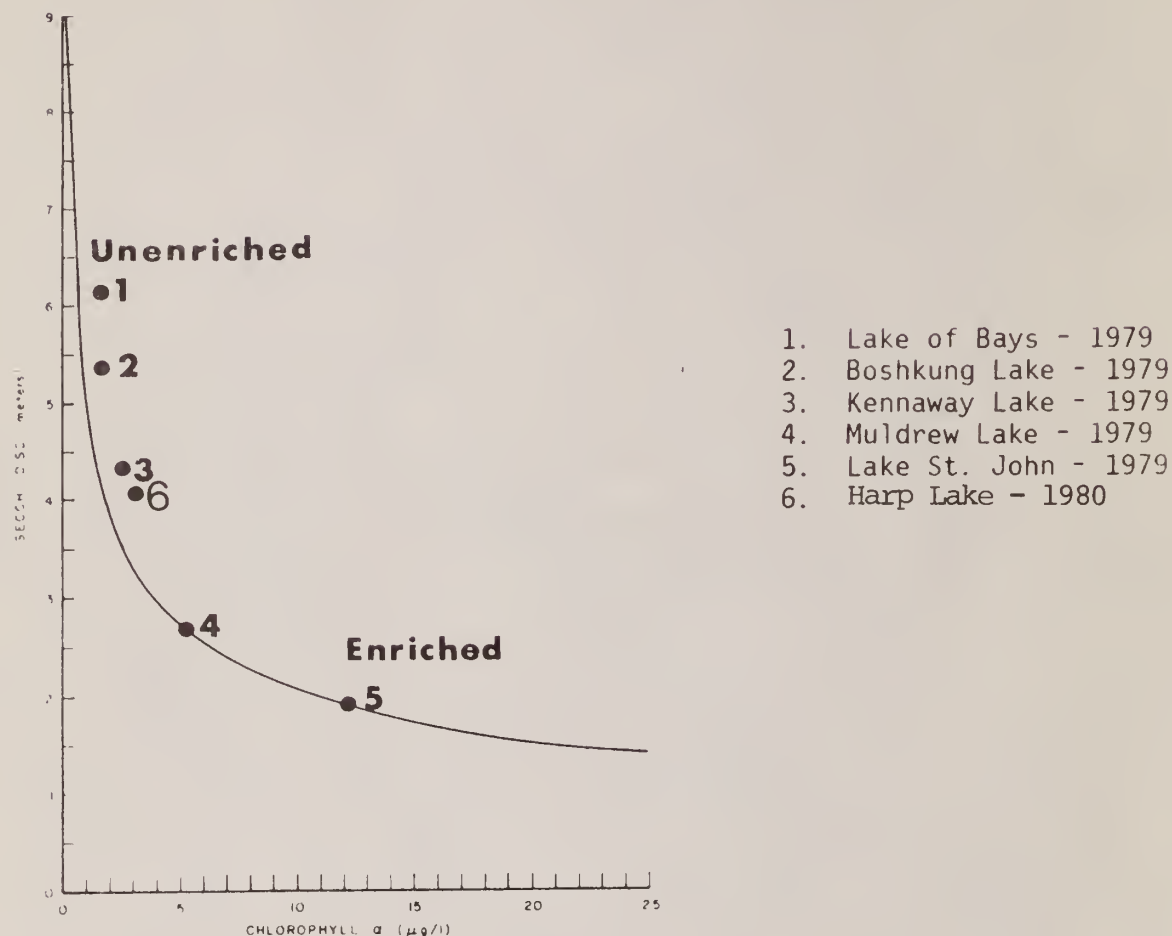
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Harp Lake in 1980

Station	Main		
Date	S.D.	Chl. <u>a</u>	
May 18	3.65	3.4	The Secchi disc readings varied from 3.5 to 5.18 metres and chlorophyll <u>a</u> concentrations varied from 1.4 to 4.6 ug/L. Based on the seasonal means for these two parameters, Harp Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.
June 22	5.18	4.6	
July 6	3.81	2.3	
July 20	3.50	2.6	
July 13	3.81	1.4	
Aug. 17	4.42	3.3	
Aug. 31	<u>4.27</u>	<u>4.2</u>	
Mean	4.1	3.1	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Harp Lake from 1973 to 1980

Station	Main		
Year	S.D.	Chl. <u>a</u>	
1971			
1972			
1973	4.0	3.3	
1974	3.7	2.1	
1975	5.0	3.3	
*1976	4.5	2.2	
1977	4.8	- -	
1978	4.5	1.9	
1979	4.6	2.8	
1980	4.1	3.1	* based on 2 samplings

Figure 1: The relationship between Secchi disc and chlorophyll a for Harp Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last eight years, the seasonal means for Secchi disc readings ranged from 3.7 to 5.0 metres and chlorophyll a concentrations ranged from 1.9 to 3.3 ug/L. The year to year variation can be attributed to natural fluctuation. Harp Lake appears to be in a stable condition. It is recommended that participation in this programme be continued in order to determine if this condition persists.

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HEAD LAKE

Townships of Laxton & Digby

County of Victoria

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Head Lake in 1980

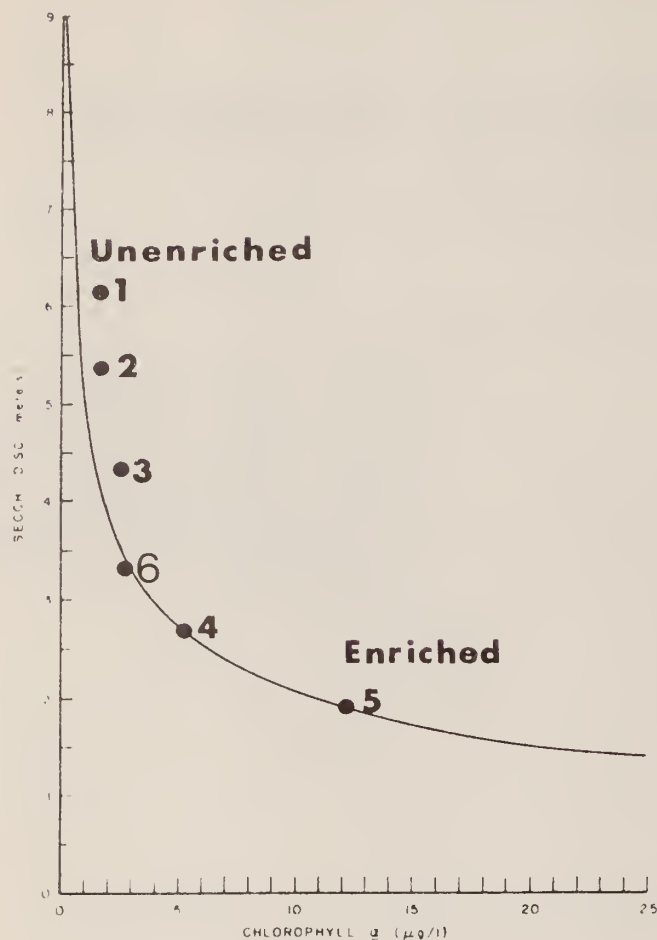
Station	Main	
Date	S.D.	Chl.a
May 19	2.75	3.8
May 25	2.50	
June 1	4.0	2.6
June 8	4.0	4.6
June 15	4.0	3.2
June 22	3.0	2.2
June 30	3.25	2.1
July 6	3.0	1.9
July 13	3.25	2.0
July 20	3.0	2.7
July 27	4.0	3.1
Aug. 4	3.5	2.2
Aug. 10	3.0	2.2
Aug. 17	2.75	3.2
Aug. 24	<u>2.75</u>	<u>2.6</u>
Mean	3.3	2.7

Another excellent sampling program was carried out on the lake during 1980. Based on mean values of data shown in Table 1, Head Lake is considered moderately enriched with moderate algal densities and a moderate degree of water transparency.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Head Lake from 1972 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972	3.2	2.8
1973	2.9	3.0
1974	2.8	2.0
1975	2.8	2.7
1976	3.0	2.9
1977	3.3	- -
1978	2.9	2.5
1979	3.2	2.5
1980	3.3	2.7

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Head Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Head Lake - 1980

Comparison of the year to year mean values from Table 2 indicate that the lake has had very stable enrichment status since 1972. Continued participation in the sampling program is encouraged.

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JACK LAKE

Township of Burleigh & Methuen

County of Peterborough

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Jack Lake in 1980

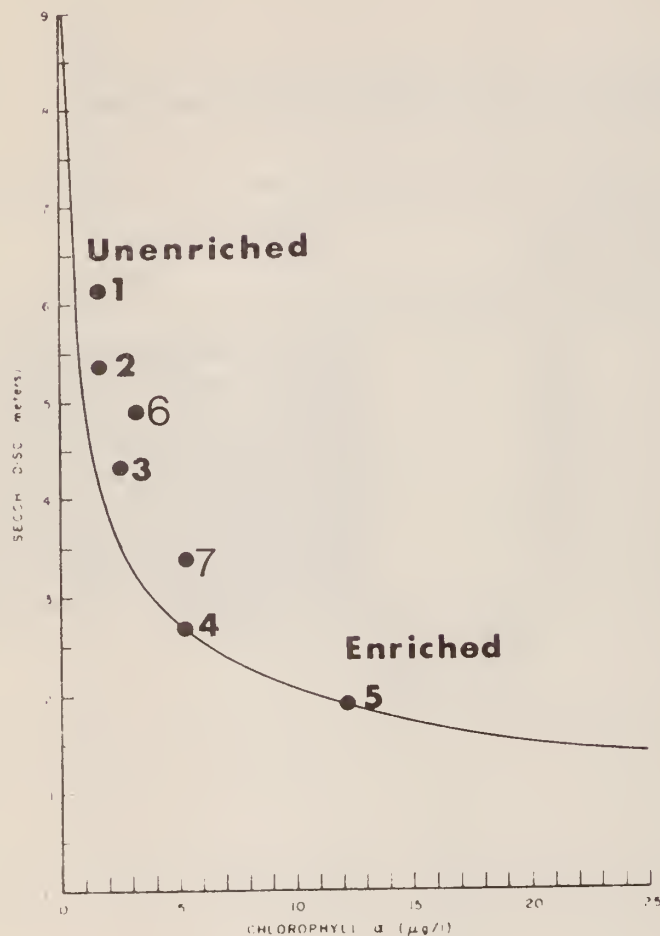
Station	1		2		
	Sharp's Bay		Brook's Bay		
Date	S.D.	Chl.a	S.D.	Chl.a	
May 19	4.50	4.1	2.5	5.4	Based on mean values for the two parameters shown in Table 1, Sharp's Bay was considered moderately enriched with moderate algal densities while Brook's Bay was considered moderately enriched with high algal densities and a moderate degree of water transparency.
June 22	6.66	2.9	3.5	5.0	
July 10	5.0	2.9	4.0	6.5	
July 24	5.0	3.1	3.5	9.0	
Sept. 1	4.0	2.4	3.5	3.8	
Sept. 22	<u>4.0</u>	<u>3.2</u>	<u>3.5</u>	<u>1.8</u>	
Mean	4.9	3.1	3.4	5.3	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Jack Lake from 1971 to 1980

Station	Sharp's Bay		Brook's Bay	
	S.D.	Chl.a	S.D.	Chl.a
1971				
1972			3.9	2.6
1973				
1974	4.4	1.4	3.4	1.9
1975				
1976	4.5	2.9	3.4	3.7
1977	4.7		3.5	
1978	4.7	2.6	3.3	3.9
*1978	5.2	2.6	3.8	3.4
1979	4.4	3.1	3.2	5.1
1980	4.9	3.1	3.4	5.3

* Mean values from MOE/7 Links Water Quality Survey

Figure 1: The relationship between Secchi disc and chlorophyll a for Jack Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Jack Lake (Sharp's Bay) - 1980
7. Jack Lake (Brook's Bay) - 1980

A year to year trend toward increasing algal densities in Brook's Bay may be indicated by the mean chlorophyll a values since 1972, however, the enrichment status of Sharp's Bay appears to be relatively stable. Continued participation in the sampling program is encouraged to be sure of long term trends.

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KAHSHE LAKE

Town of Gravenhurst

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Kahshe Lake in 1980

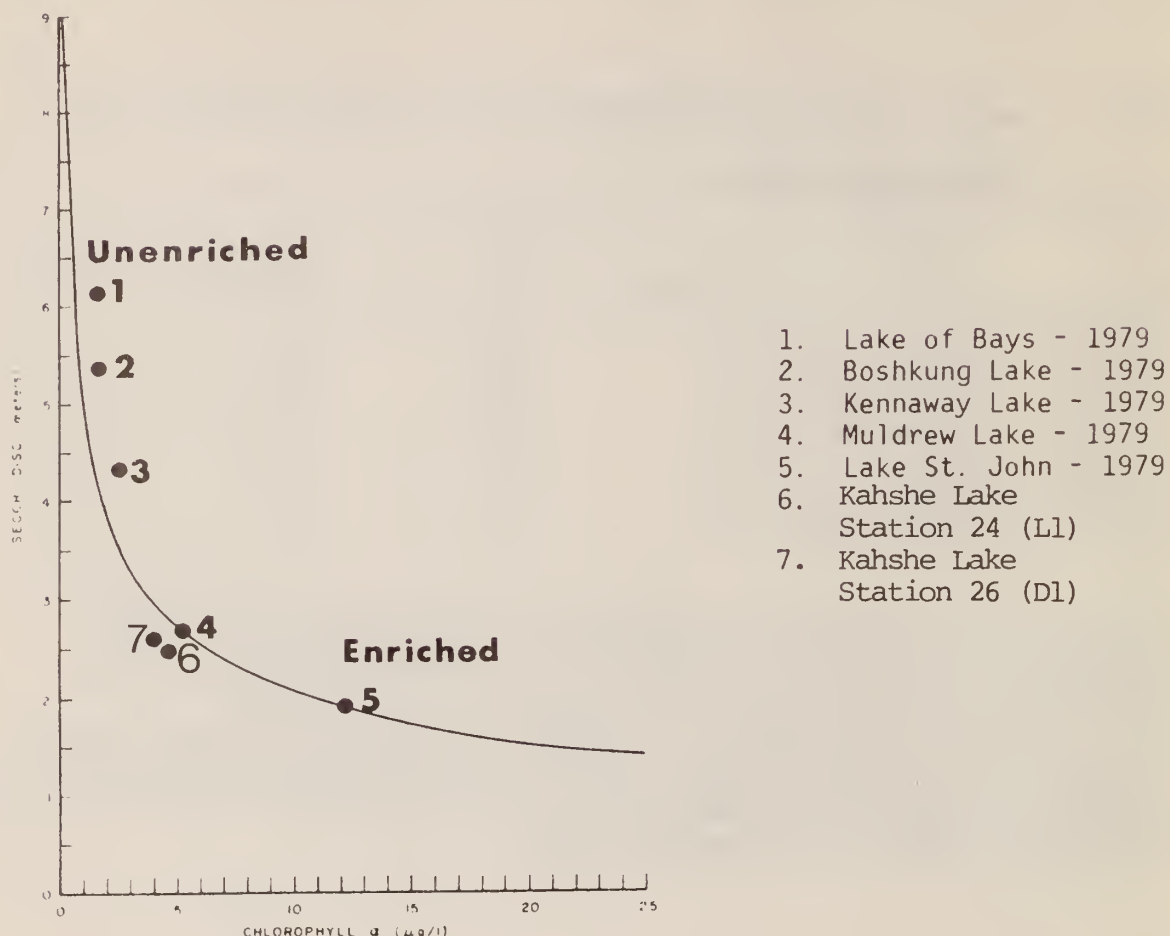
Station	24 (L1)		26 (D1)	
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
June 1	2.5	3.9	2.25	4.6
July 13	2.5	6.7	3.5	5.1
Aug. 4	2.75	4.3	2.5	3.8
Aug. 10	2.25	2.6	2.25	3.6
Aug. 24	<u>2.5</u>	<u>4.4</u>	<u>2.5</u>	<u>3.6</u>
Mean	2.5	4.4	2.6	4.1

The Secchi disc readings at Station 24 (L1) varied from 2.25 to 2.75 metres and at Station 26 (D1) varied from 2.25 to 3.5 metres. The chlorophyll a concentrations varied from 2.6 to 6.7 metres at Station 24 (L2) and varied from 3.6 to 5.1 metres at Station 26 (D1). Water quality at both stations was similar. Based on the seasonal means for these two parameters, Kahshe Lake would be considered moderately enriched to enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kahshe Lake in 1971, 1977, 1979 and 1980

Station	24 (L1)		26 (D1)	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
1971	2.6	3.0	2.9	3.2
1972				
1973				
1974				
1975				
1976				
1977	3.2	- -	3.5	- -
1978				
1979	3.2	5.2	3.4	5.1
1980	2.5	4.4	2.6	4.1

Figure 1: The relationship between Secchi disc and chlorophyll a for Kahshe Lake and a number of recreational lakes in the province. All data are seasonal means.



The historical record of seasonal mean Secchi disc readings and chlorophyll a concentrations is rather sketchy. It is recommended that participation in this programme be continued for a number of years to determine what changes, if any are occurring in Kahshe Lake's enrichment status.

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KASHAGAWIGAMOG LAKE

Dysart and Minden Townships

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Kashagawigamog Lake in 1980

Station	1 (South)		
Date	S.D.	Chl. <u>a</u>	
May 19	3.5	7.6	Secchi disc readings varied from 3.0 to 5.63 metres and chlorophyll <u>a</u> concentrations varied from 1.9 to 7.6 ug/L during the sampling period. Based on the seasonal means for these two parameters, the southern portion of Kashagawigamog Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.
June 15	4.4	3.1	
July 6	4.1	2.5	
July 13	5.63	3.4	
July 20	5.33	2.4	
July 27	3.0	2.5	
Aug. 10	5.48	1.9	
Sept. 1	<u>5.18</u>	<u>2.5</u>	
Mean	4.6	3.2	

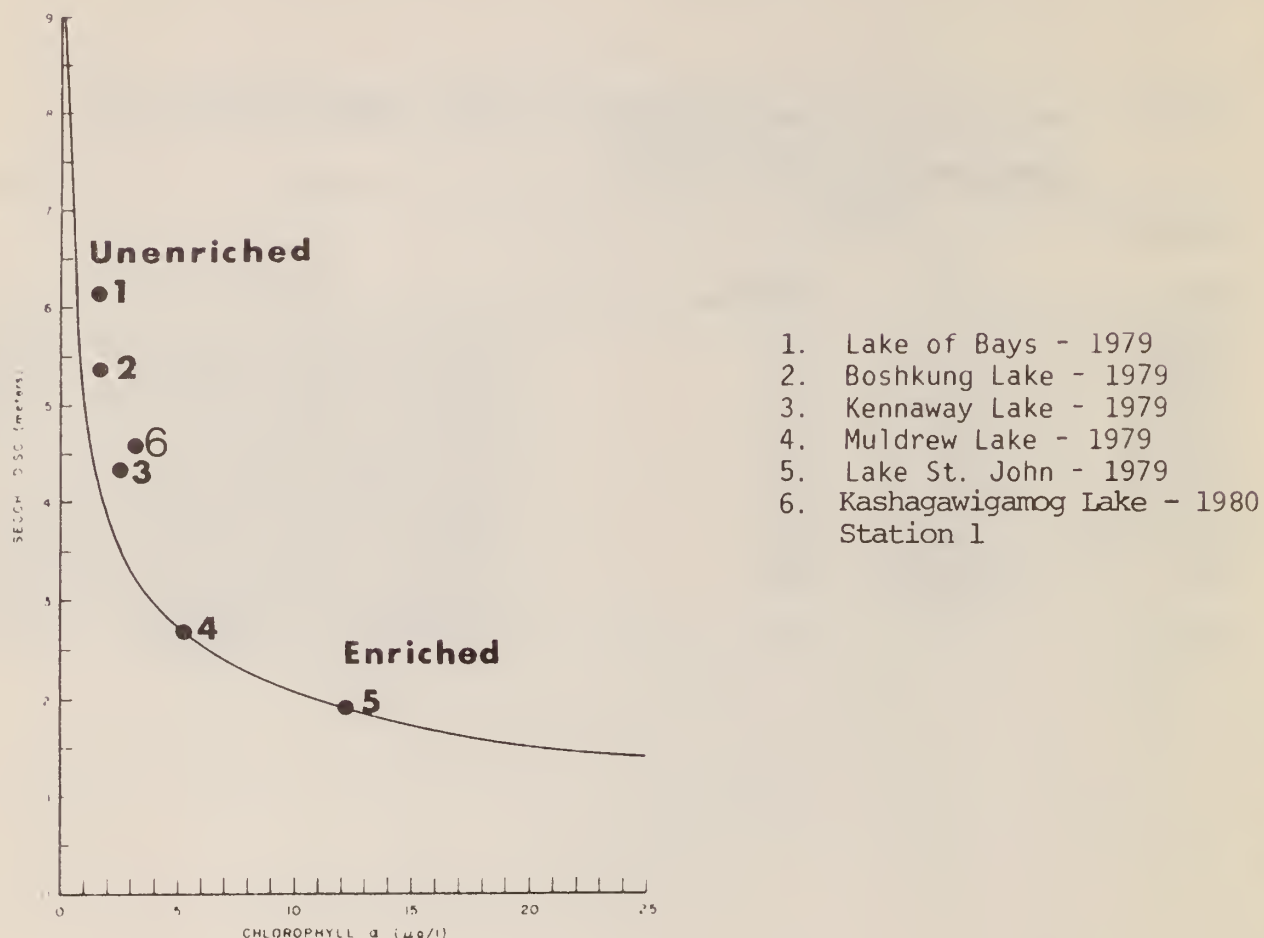
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kashagawigamog Lake from 1972 to 1980

Station	South		North	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
1971				
*1972	- -	- -	4.2	4.7
1973	4.5	1.7	4.6	2.0
1974	4.2	1.5	4.4	1.4
1975	5.2	1.1	4.9	1.7
1976	4.5	1.3**	4.0	2.7
1977	5.6	- -	4.9	- -
1978	5.4	1.6	4.1	1.8
1979	4.9	2.3	- -	- -
1980	4.6	3.2	- -	- -

* lake average

** based on two samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Kashagawigamog Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last nine years, the seasonal mean Secchi disc readings at Station 1 ranged from 4.2 to 5.6 metres. The seasonal mean chlorophyll a concentrations ranged from 1.1 to 3.2 $\mu\text{g/L}$. In 1979 and 1980 the chlorophyll a concentrations are slightly higher than previous years. The reason for this increase may be due to natural fluctuations, however, it is recommended that this programme be continued to determine if this trend persists.

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KASSHABOG LAKE

Townships of Belmont & Methune

County of Peterborough

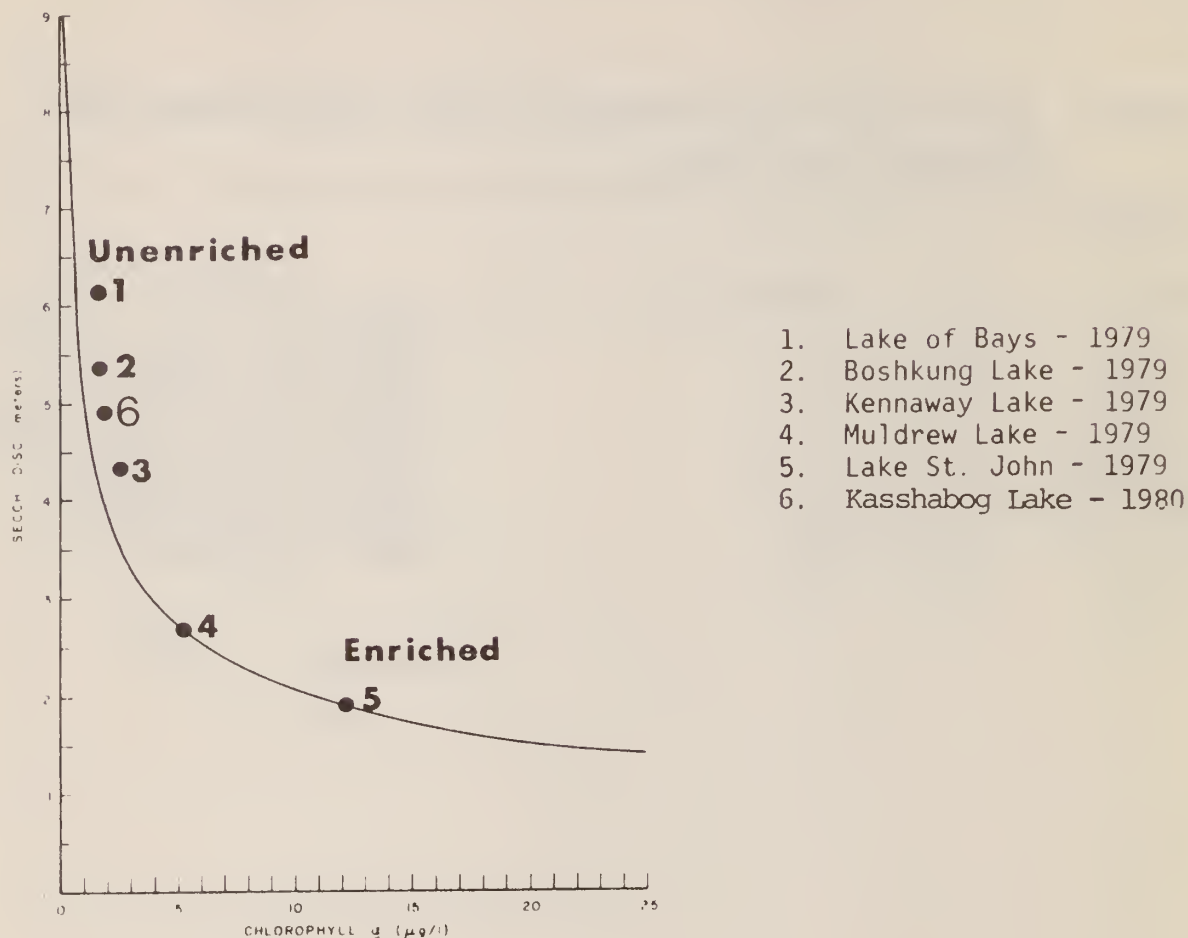
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Kasshabog Lake in 1980

Station	1		
Date	S:D.	Chl.a	
May 5	5.2	1.6	Based on the mean values of Secchi disc readings and chlorophyll a concentration, Kasshabog Lake is considered moderately enriched but with low algal densities and a moderately high degree of water transparency.
June 6	5.0	- -	
June 23	5.0	1.5	
Aug. 5	5.0	- -	
Aug. 18	4.5	2.0	
Sept. 7	4.3	2.2	
Oct. 13	<u>5.3</u>	<u>1.6</u>	
Mean	4.9	1.8	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Kasshabog Lake in 1978 and 1980

Station			
Year	S.D.	Chl.a	
1971			
1972			
1973			
1974			
1975			
1976			
1977			
*1978	4.0	1.7	
1979			
1980	4.9	1.8	* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Kasshabog Lake and a number of recreational lakes in the province. All data are seasonal means.



This is the first year that the program has been carried out on Kasshabog Lake. Comparison of this year's data with data collected by MOE staff in 1978 shows no significant difference in the enrichment status of the lake. Continued participation in the program is encouraged to be sure of any long term trends in water quality.

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KAWAGAMA LAKE

Sherborne Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kawagama Lake in 1980

Station	1		2		3		4		5		6		7	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
July 30	--	--	--	--	8.5	0.7	10.0	0.6	8.2	0.7	6.4	1.4	8.5	0.7
July 6	--	--	--	--	8.5	0.6	8.2	0.6	--	--	--	--	7.3	1.1
July 13	--	--	7.0	1.8	--	--	--	--	--	--	--	--	5.5	1.4
July 27	--	--	6.9	2.0	10.4	1.3	--	--	--	--	--	--	8.2	1.9
Aug. 4	5.6	2.4	--	--	--	--	--	--	--	--	--	--	5.5	1.4
Aug. 10	--	--	6.9	2.6	9.8	1.1	--	--	--	--	6.0	3.9	6.4	1.5
Aug. 17	--	--	6.9	2.8	--	--	--	--	--	--	--	--	--	--
Aug. 24	5.5	2.6	--	--	9.5	1.0	10.4	0.9	--	--	6.5	3.2	8.5	1.0
Sept. 1	--	--	--	--	8.8	1.4	8.5	0.8	--	--	--	--	8.5	1.2
Sept. 21	5.3	2.5	--	--	--	--	--	--	--	--	--	--	--	--
Sept. 28	--	--	7.2	1.5	--	--	--	--	--	--	5.5	1.5	--	--
Oct. 13	4.6	2.4	--	--	--	--	--	--	--	--	5.5	1.5	--	--
Nov. 2	4.6	1.7	--	--	--	--	--	--	--	--	--	--	--	--
Maximum	5.6	2.6	7.2	2.8	10.4	1.4	10.4	0.9	--	--	6.5	3.9	8.5	1.9
Minimum	4.6	1.7	6.9	1.5	8.5	0.6	8.2	0.6	--	--	5.5	1.4	5.5	0.7
Mean	5.1	2.3	7.0	2.1	9.2	1.0	9.3	0.7	--	--	6.0	2.3	7.3	1.3

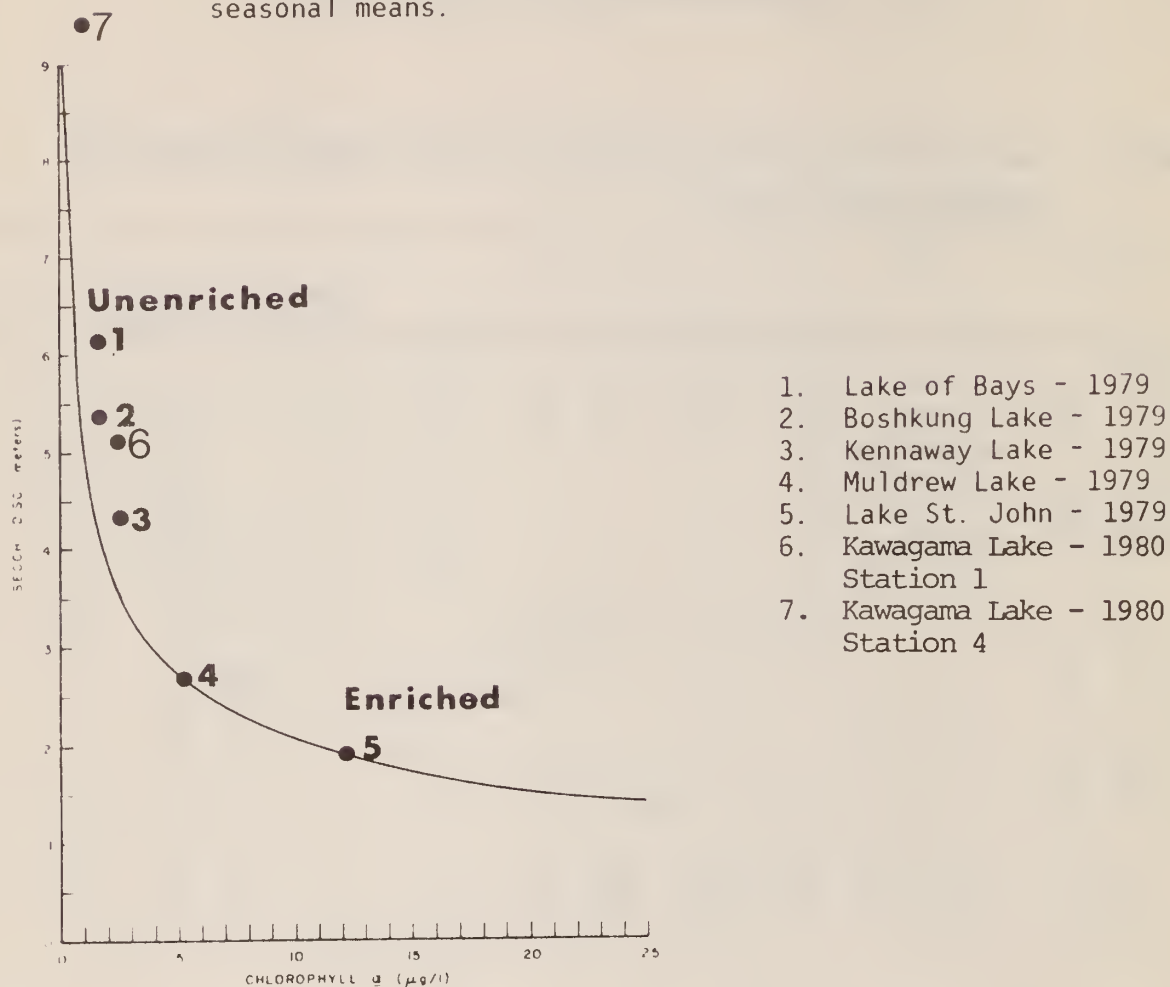
Station 5 was sampled only once during the sampling period so it was ignored. All other stations would be considered unenriched with stations 3 and 4 exhibiting the highest degree of water transparency and the lowest densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kawagama Lake from 1976 to 1980

Station	1		2		3		4		5		6		7	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971														
1972														
1973														
1974														
1975														
1976	4.5	2.5	7.2	1.6	9.6	1.0	10.1	1.0	9.5	1.1	7.1	1.4	9.5	1.3
1977	5.2	--	7.8	--	8.6	--	9.4	--	10.8	--	7.1	--	10.2	--
1978	5.5	2.9	7.9	1.6	--	--	10.4	0.7	7.1	1.0	7.2	1.4	8.8	1.4
1979	5.0	3.4	--	--	9.3	0.8	8.3	1.2	--	--	6.2	2.0	9.6	1.1
1980	5.1	2.3	7.0	2.1	9.2	1.0	9.3	0.7	--	--	6.0	2.3	7.3	1.3

Figure 1:

The relationship between Secchi disc and chlorophyll *a* for Kawagama Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last five years, there has been very little variation in the seasonal mean Secchi disc readings and chlorophyll *a* concentrations. This variation could be attributed to natural fluctuation. There are no real trends evident to indicate that enrichment status is changing. The condition of Kawagama Lake appears to be stable and continued participation in this programme is recommended to determine if this condition persists.

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KENNAWAY LAKE

Harcourt Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Kennaway Lake in 1980

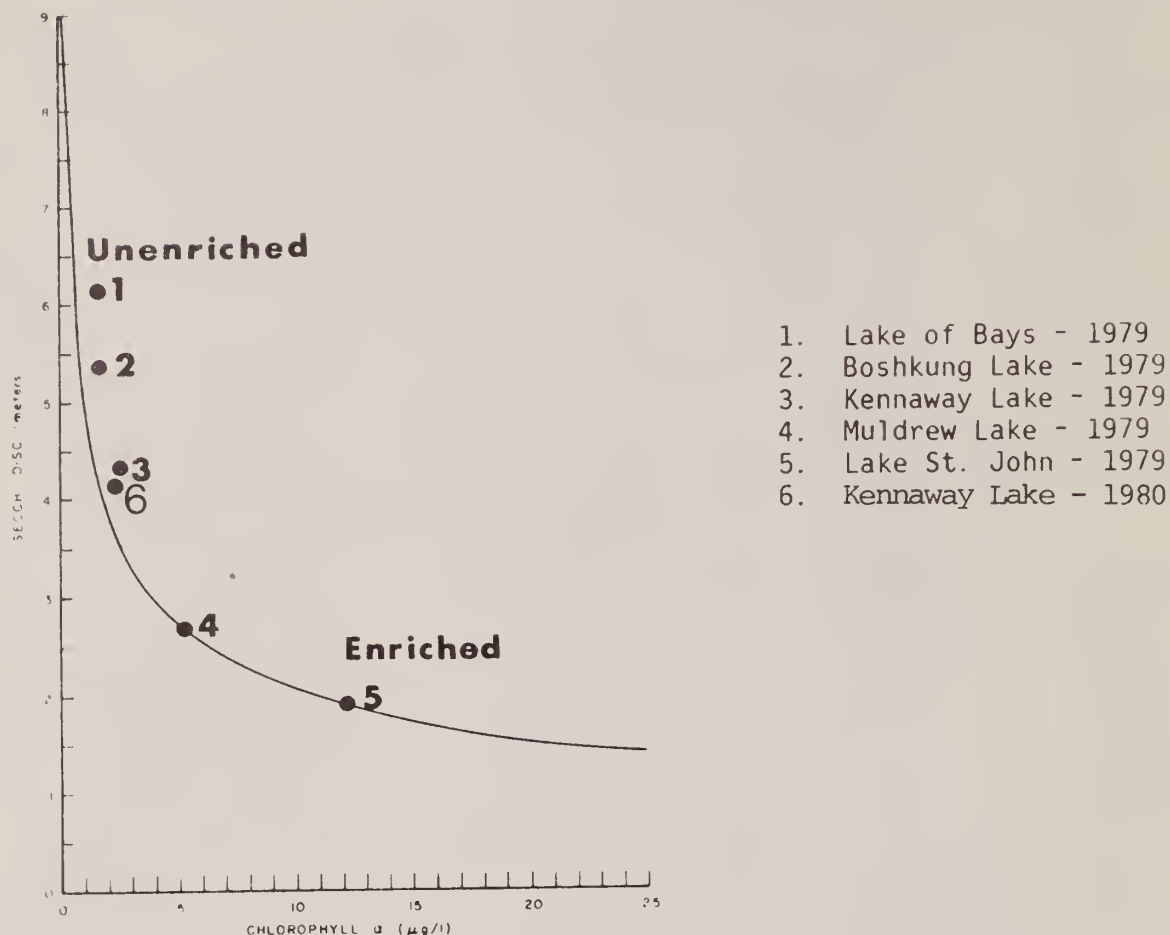
Station	Main	
Date	S.D.	Chl. a
May 19	5.00	0.9
June 1	3.75	3.7
June 22	4.00	2.3
June 30	3.25	3.0
July 6	3.5	0.9
July 13	4.5	1.4
July 20	4.0	1.5
July 27	4.5	2.0
Aug. 4	- -	2.4
Aug. 10	4.25	2.3
Aug. 17	4.25	2.7
Aug. 24	5.0	3.9
Sept. 1	<u>4.0</u>	<u>2.1</u>
Mean	4.2	2.2

The Secchi disc readings varied from 3.25 to 5.0 metres during the sampling period. Chlorophyll a concentrations varied from 0.9 to 3.9 ug/L. Based on the seasonal means for these two parameters, Kennaway Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderately low densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kennaway Lake from 1973 to 1980

Station	Main	
Year	S.D.	Chl. a
1971		
1972		
1973	4.1	3.3
1974	3.6	1.9
1975	3.8	2.7
1976	4.2	3.8
1977	4.7	- -
1978	3.6	2.4
1979	4.3	2.4
1980	4.2	2.2

Figure 1: The relationship between Secchi disc and chlorophyll a for Kennaway Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last eight years, conditions in Kennaway Lake have changed very little indicating a stable lake condition. The seasonal means for Secchi disc readings have ranged from 3.6 to 4.7 metres and chlorophyll a concentrations have ranged from 1.9 to 3.8 ug/L. It is recommended that this programme be continued in order to determine if this condition persists.

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KENNISIS LAKE

Havelock and Guilford Townships
Provisional County of Haliburton.

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Kennisis Lake in 1980

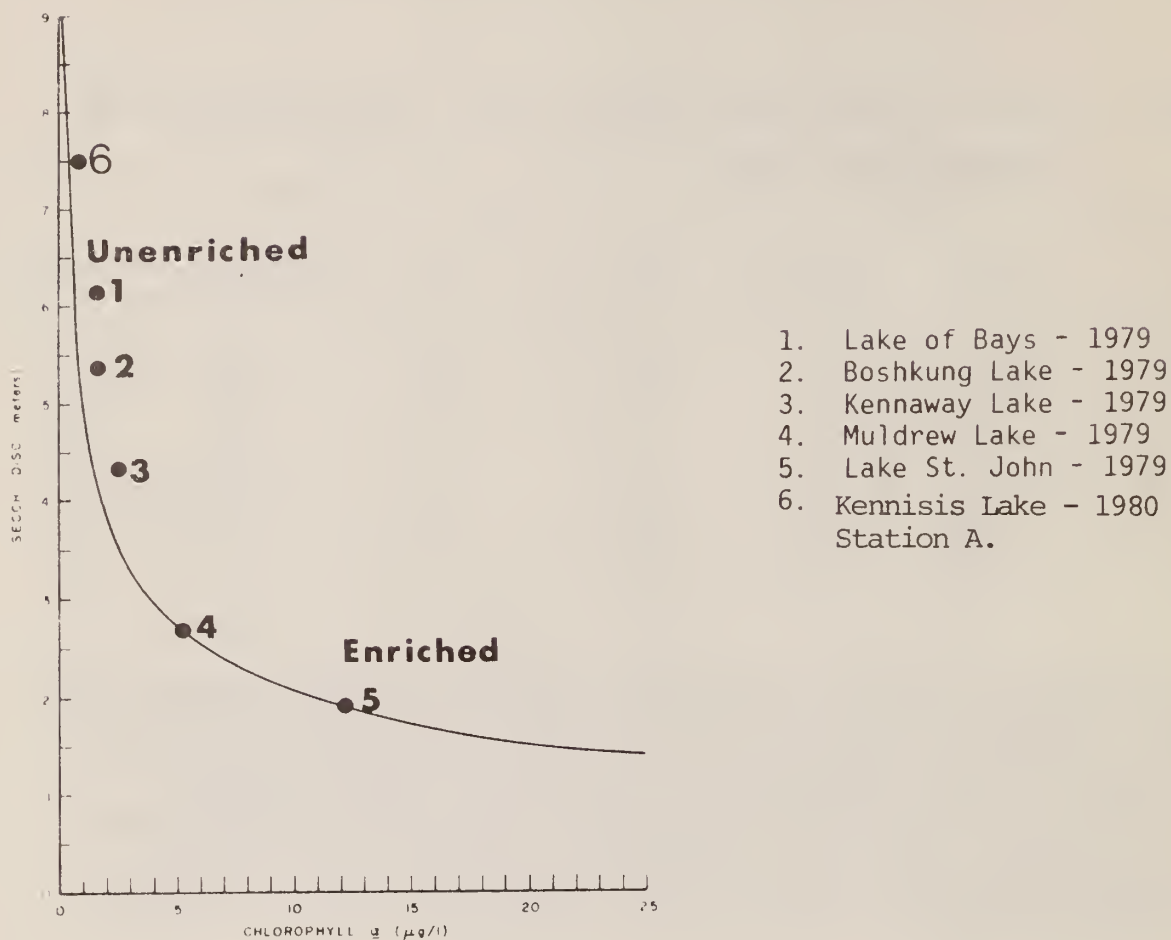
Station	A		B		C	
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
June 29	7.16	0.6	7.16	0.9	6.4	0.7
July 6	10.0	0.8	10.5	0.8	10.0	0.8
July 13	7.75	1.1	9.25	0.6	9.25	1.1
July 26	7.25	0.8	- -	0.8	7.5	0.6
Aug. 3	4.5	1.0	6.0	0.7	4.0	1.5
Aug. 17	7.75	0.9	7.5	0.8	8.25	0.7
Aug. 23	<u>8.25</u>	<u>1.4</u>	<u>9.0</u>	<u>1.1</u>	<u>6.6</u>	<u>1.2</u>
Mean	7.5	0.8	8.2	0.8	7.4	0.9

The two parameters monitored were very similar at all three stations. The Secchi disc readings varied from 4.5 to 10.0 metres at Station A; from 6.0 to 10.5 metres at Station B; and from 4.0 to 10.0 metres at Station C. The reason for this fluctuation is not apparent. The chlorophyll a concentrations exhibited less fluctuation. Based on this seasonal means at all stations, Kennisis Lake would be considered very unenriched characterized by a high degree of water transparency and low densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Kennisis Lake from 1972 to 1978 and 1980.

Station	A		B		C	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
1971						
1972	6.8	1.0	9.2	0.9	9.0	0.9
1973	7.8	0.7	9.5	0.8	9.5	0.8
1974	7.7	0.8	8.6	0.5	8.6	0.4
1975	9.5	1.0	10.0	0.6	10.5	0.8
1976	8.2	1.4	9.3	1.4	9.6	1.2
1977	9.4	- -	9.5	- -	9.6	- -
1978	9.3	1.0	9.8	1.0	9.6	1.0
1979	- -	- -	- -	- -	- -	- -
1980	7.5	0.8	8.2	0.8	7.4	0.9

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Kennisis Lake and a number of recreational lakes in the province. All data are seasonal means.



During the eight years that Kennisis Lake has been sampled in this programme, there has been little change in the seasonal means for the two parameters monitored. In 1980, the seasonal mean Secchi disc readings appear to be lower than in previous years, however, this could be due to natural fluctuations. It is recommended that this programme be continued in order to determine if this trend continues.

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KOSHLONG LAKE

Glamorgan Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Koshlong Lake in 1980

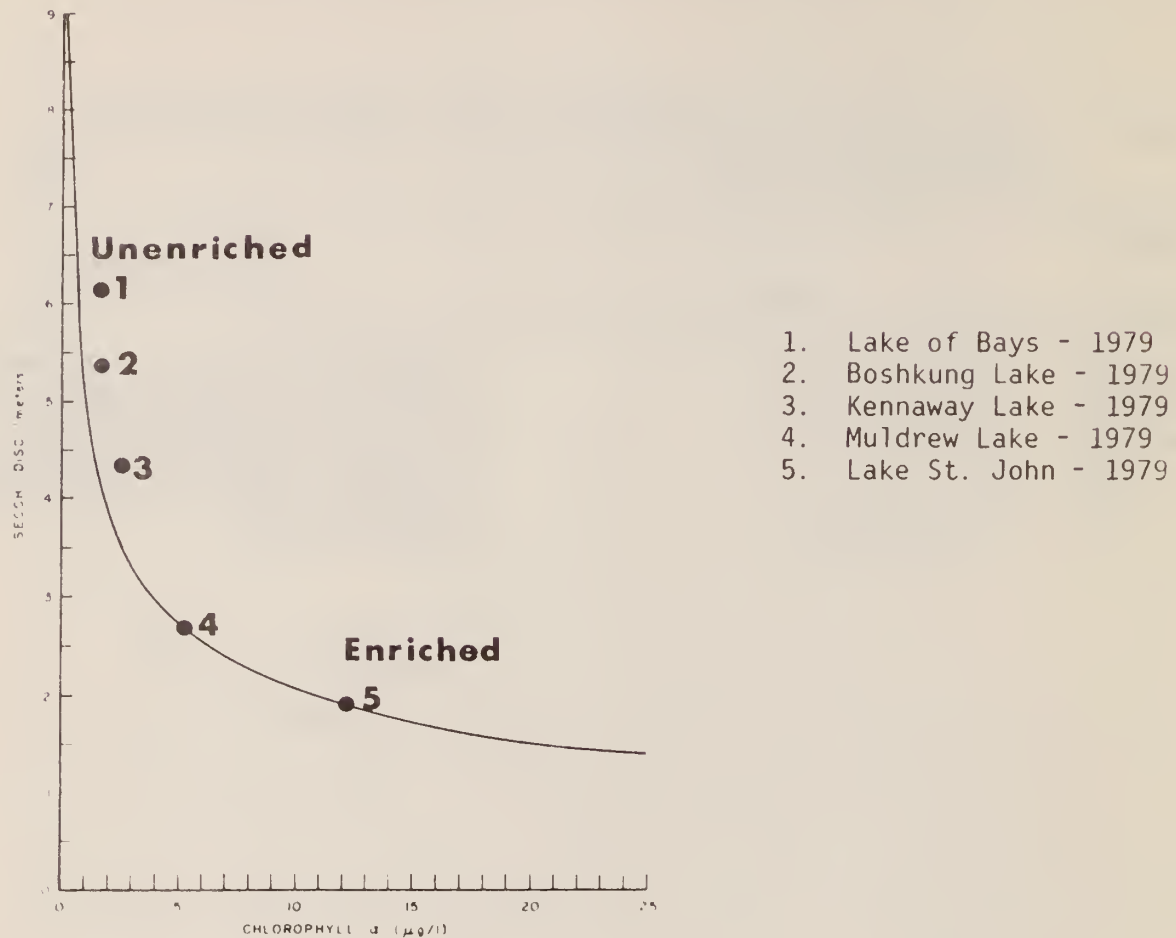
Station	1	
Date	S.D.	Chl. <u>a</u>
July 14	4.5	1.8
July 29	5.5	2.7
Aug. 10	5.9	1.7

Insufficient data was collected to allow any meaningful conclusions to be made. It is recommended that at least six samples be taken throughout the season in order to get a reliable seasonal mean.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Koshlong Lake from 1973 to 1977

Station	1	
Year	S.D.	Chl. <u>a</u>
1971		
1972		
1973	5.7	2.0
1974	5.4	1.3
1975	6.5	1.9
1976	5.7	2.2
1977	7.2	--
1978	--	--
1979	--	--
1980	--	--

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Koshlong Lake and a number of recreational lakes in the province. All data are seasonal means.



If participation in this programme is to be continued, the sampling frequency must be increased.

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LAKE JOSEPH

Township of Muskoka Lakes

District Municipality of Muskoka

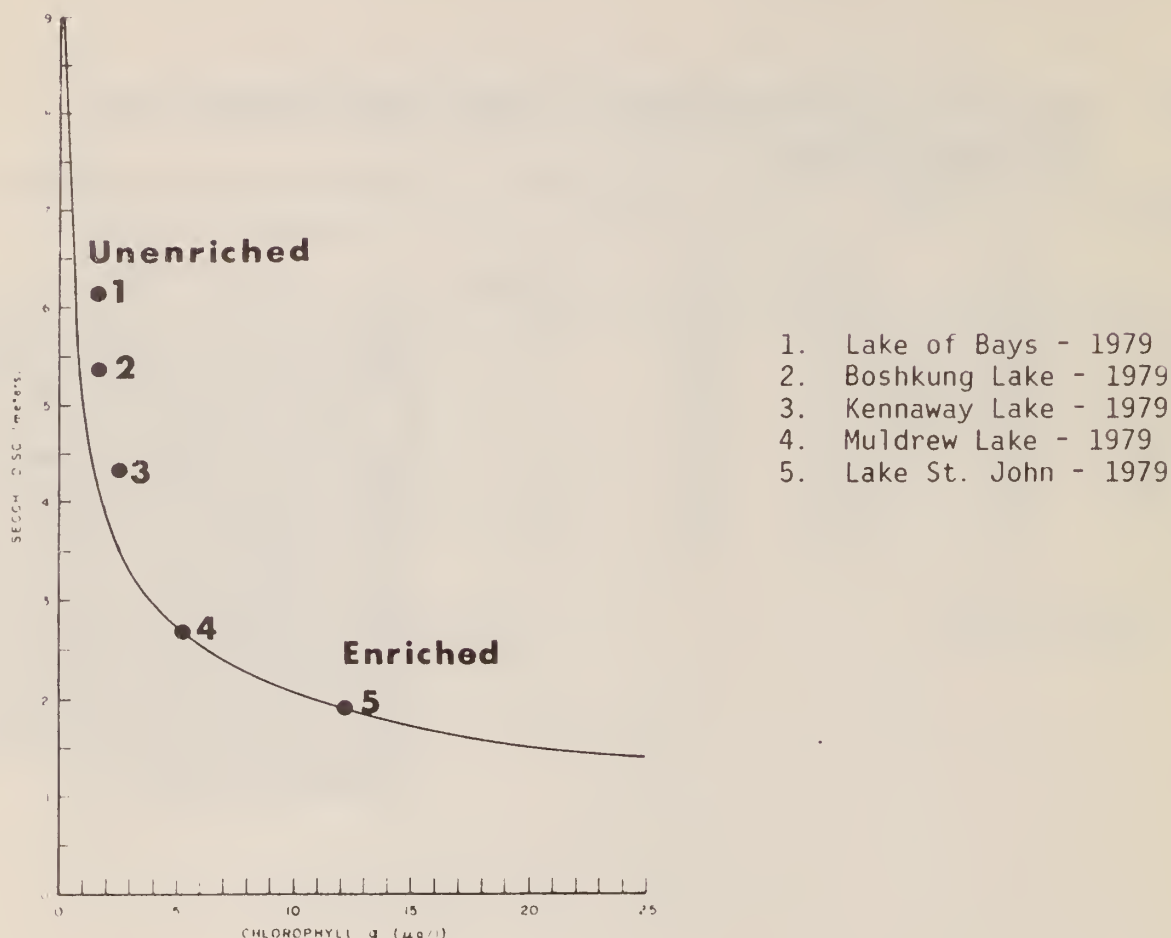
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake Joseph in 1980

Station	"A"		"B"		
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	
July 24	8.0	1.2	8.0	1.4	The Secchi disc readings varied from 7.0 to 8.0 metres at Station A and from 7.0 to 8.0 at Station B. This indicates that Lake Joseph has a high degree of water transparency. Because of insufficient chlorophyll <u>a</u> data it is impossible to make any meaningful conclusions with regard to densities of suspended algae. It is recommended that at least six samples be collected throughout the season in order to get a more reliable picture of lake enrichment status.
Aug. 2	7.0	- -	7.0	- -	
Aug. 13	7.5	- -	8.0	- -	
Aug. 20	7.5	- -	7.8	- -	
Aug. 31	8.0	- -	7.5	- -	
Sept. 10	<u>7.3</u>	<u>L.A.</u>	<u>7.0</u>	<u>1.5</u>	
Mean	7.6	- -	7.6	- -	
L.A. - Lab Accident					

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake Joseph from 1970 to 1980

Station	J7		J8		A (Hallam)		B (Hallam)	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
*1970	8.1	1.0	5.8	2.5				* MOE data
1971								
1972								
1973								
1974	7.0	0.5						
1975								
1976	8.2	1.4	6.2	2.2				
1977	8.3	- -	6.2	- -	8.4	- -	8.6	- -
1978	- -	- -	- -	- -	8.4	1.1	8.5	1.1
1979	- -	- -	- -	- -	8.5	3.6	9.3	2.6
1980	- -	- -	- -	- -	7.6	- -	7.6	- -

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Joseph and a number of recreational lakes in the province. All data are seasonal means.



The historical record for the seven years that Lake Joseph has been sampled in this programme is sketchy. At stations A & B, there is insufficient data with regard to seasonal mean chlorophyll a concentrations to make any conclusions regarding changes in densities of suspended algae. In 1980, the seasonal mean Secchi disc reading has decreased slightly, however this could be due to natural fluctuation. It is recommended that this programme be continued and more frequent chlorophyll a samples be taken in order to determine if the enrichment status of Lake Joseph is changing.

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LAKE OF BAYS

Township of Lake of Bays

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake of Bays in 1980

Station	2		5		6		7		10		12	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
May 25	6.5	1.0	7.5	1.5	6.5	A	8.0	0.9	7.5	1.0	7.0	1.0
July 13	7.0	0.7	5.9	0.8	7.5	0.7	6.8	1.0	5.3	1.1	4.11	1.4
July 27	8.0	1.6	8.0	1.5	8.0	1.6	8.0	1.6	8.0	1.5	7.0	1.8
Aug. 10	7.0	2.1	8.0	1.3	7.0	1.4	7.0	1.4	6.25	2.2	5.5	1.5
Aug. 17	8.25	1.5	8.25	1.6	7.75	1.6	7.5	1.5	7.25	1.6	5.25	1.2
Sept. 1	6.4	1.3	5.5	1.6	5.5	1.8	5.5	1.2	5.5	1.0	4.6	1.2
Maximum	8.25	2.1	8.25	1.6	8.0	1.8	8.0	1.6	8.0	2.2	7.0	1.8
Minimum	6.4	0.7	5.5	0.8	5.5	0.7	5.5	0.9	5.3	1.0	4.11	1.0
Mean	7.2	1.4	7.2	1.4	7.0	1.4	7.1	1.3	6.6	1.4	5.6	1.4

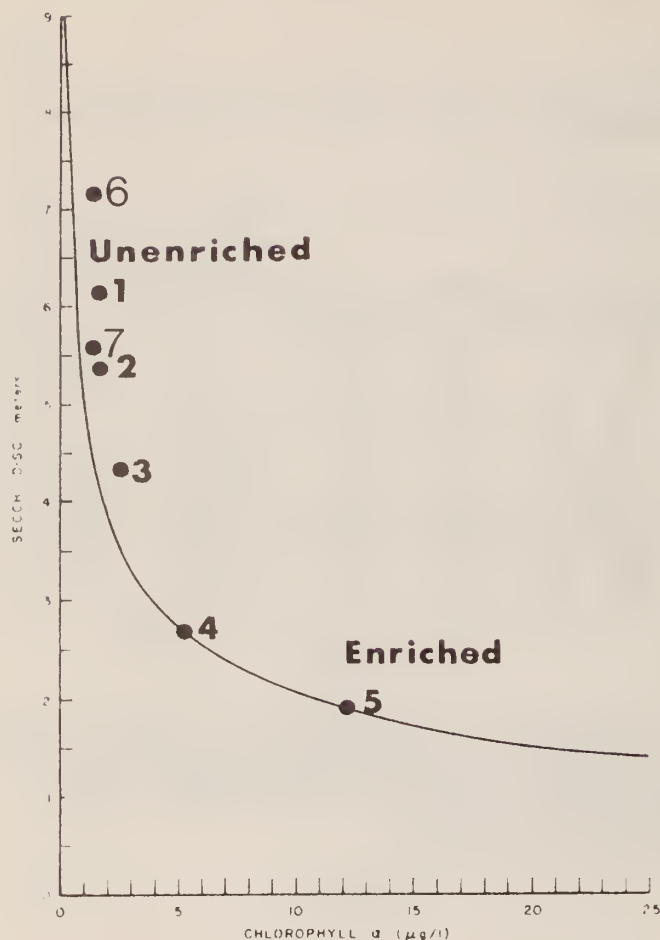
A - lab accident

Based on the seasonal means, all stations in Lake of Bays would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae. Stations 10 and 12 had a slightly lower degree of water transparency than other stations.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake of Bays from 1977 to 1980

Station	2		4		5		6		7		10		12	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971														
1972														
1973														
1974														
1975														
1976														
1977	7.5	- -	6.5	- -	7.0	- -	6.3	- -	7.4	- -	6.1	- -	6.5	- -
1978	8.0	1.3	6.2	1.0	7.2	1.3	7.1	1.5	6.9	1.1	7.4	1.7	6.0	1.2
1979	6.2	1.7	- -	- -	6.6	1.6	6.3	2.0	6.4	1.3	6.2	1.6	5.6	1.5
1980	7.2	1.4	- -	- -	7.2	1.4	7.0	1.4	7.1	1.3	6.6	1.4	5.6	1.4

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake of Bays and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Lake of Bays- 1980
Station 2
7. Lake of Bays - 1980
Station 12

During the last four years, there has been very little variation in the seasonal mean Secchi disc readings and chlorophyll a concentrations. This variation could be attributed to natural fluctuation. There are no obvious trends to indicate any change in the enrichment status of Lake of Bays and water quality remains excellent. Continued participation in this programme is recommended to determine if this condition persists.

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LAKE ST. JOHN

Rama Township

Simcoe County

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Lake St. John in 1980

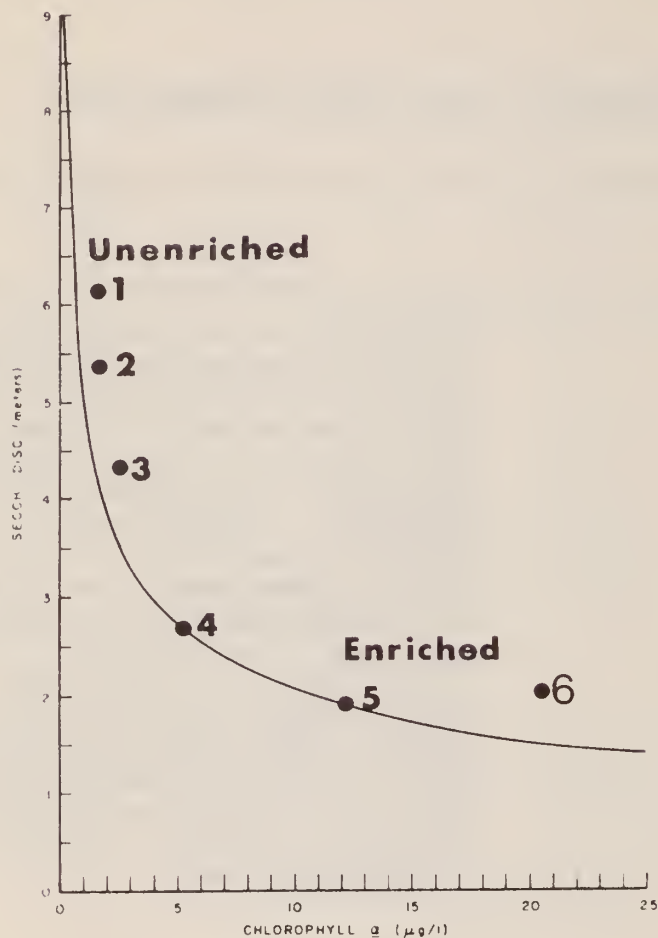
Station	Main	
Date	S.D.	Chl.a.
June 1	4.0	5.5
July 1	2.25	6.5
July 20	1.50	11.0
July 28	2.25	3.0
Aug. 4	2.0	3.8
Aug. 17	1.0	44.0
Sept. 1	.75	85.0
Oct. 4	<u>2.0</u>	<u>4.2</u>
Mean	2.0	20.4

The Secchi disc readings varied from .75 to 4.0 metres with the highest degree of water transparency occurring in the beginning of June and the lowest degree of water transparency occurring in late August and early September. The chlorophyll a concentrations varied from 3.0 to 85.0 ug/L. There is some question as to whether the concentrations of chlorophyll a on August 17 and September 1 are correct as they appear to be very high. These concentrations could be due to an "algae bloom". Based on the seasonal means, Lake St. John would be considered enriched, characterized by a low degree of water transparency and high densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Lake St. John in 1979 and 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978		
1979	1.9	12.1
1980	2.0	20.4

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake St. John and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Lake St. John - 1980

The two years of available data on Lake St. John are not sufficient to draw meaningful conclusions regarding changes in enrichment status in the lake. It is recommended that this programme be continued to determine any long-term trends in water quality.

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LEECH LAKE

Town of Bracebridge

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Leech Lake in 1980

Station	^A (North Bay)		^B (East Bay)		^C (West Bay)	
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
June 14	3.5	3.8	4.0	4.3	4.0	5.1
July 1	4.5	3.5	4.5	5.6	4.25	7.4
July 6	4.75	5.9	4.5	5.2	4.75	6.0
July 13	5.0	3.4	4.5	3.2	7.0	7.4
July 20	3.5	6.9	3.75	5.5	- -	- -
Aug. 4	- -	1.9	- -	3.3	- -	3.4
Sept. 1	<u>4.0</u>	<u>2.3</u>	<u>3.0</u>	<u>2.2</u>	<u>3.0</u>	<u>5.3</u>
Mean	4.2	4.0	4.0	4.2	4.6	5.8

Based on the seasonal mean Secchi disc readings and chlorophyll a concentrations, Leech Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and high densities of suspended algae. The variation in water quality between the three stations is minimal.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Leech Lake from 1977 to 1980

Station	^A (North Bay)		^B (East Bay)		^C (West Bay)	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>

1971

1972

1973

1974

1975

1976

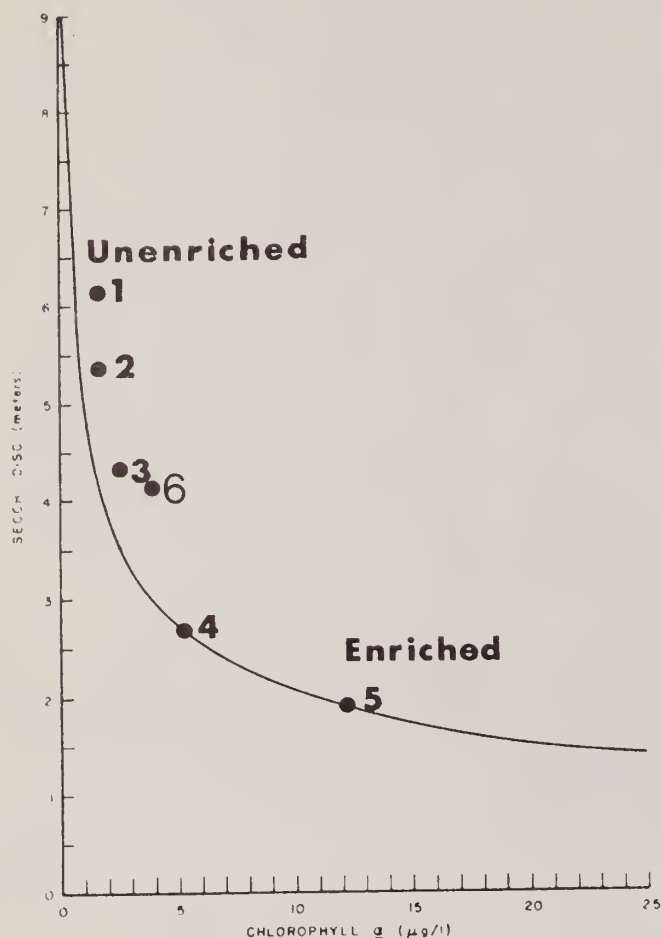
1977	5.4	- -	5.0	- -	5.4	- -
------	-----	-----	-----	-----	-----	-----

1978	3.8	4.5	4.1	4.4	4.0	5.1
------	-----	-----	-----	-----	-----	-----

1979	4.6	4.0	4.8	4.5	5.0	6.5
------	-----	-----	-----	-----	-----	-----

1980	4.2	4.0	4.0	4.2	4.6	5.8
------	-----	-----	-----	-----	-----	-----

Figure 1: The relationship between Secchi disc and chlorophyll a for Leech Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Leech Lake - 1980
Station A

During the last four years, the seasonal mean Secchi disc readings and chlorophyll a concentrations have exhibited minimal variation at all three stations. There does not appear to be any obvious trend to indicate a change in enrichment status. It is recommended that participation in this programme be continued, to determine if this stable condition persists.

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LEONARD LAKE

Township of Muskoka Lakes

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Leonard Lake in 1980

Station	North Bay		Shavahnasses Bay		
Date	S.D.	Chl.a	S.D.	Chl.a	
July 2	10.5	4.4	6.0	5.2	The Secchi disc readings at North Bay varied from 3.0 to 10.5 metres and the chlorophyll <u>a</u> concentrations varied from 1.1 to 4.4 ug/L. Based on the seasonal means for the two parameters monitored, the North Bay of Leonard Lake would be considered moderately enriched, characterized by moderate degree of water transparency and moderate densities of suspended algae. Insufficient data was collected from Shavahnasses Bay to make any assessment of water quality.
July 13	3.0	4.0	--	--	
Aug. 5	3.5	1.1	--	--	
Aug. 10	4.0	1.5	--	--	
Aug. 17	3.5	2.4	--	--	
Aug. 25	3.5	3.7	--	--	
Sept. 7	3.0	2.3	--	--	
Mean	4.4	2.8	--	--	

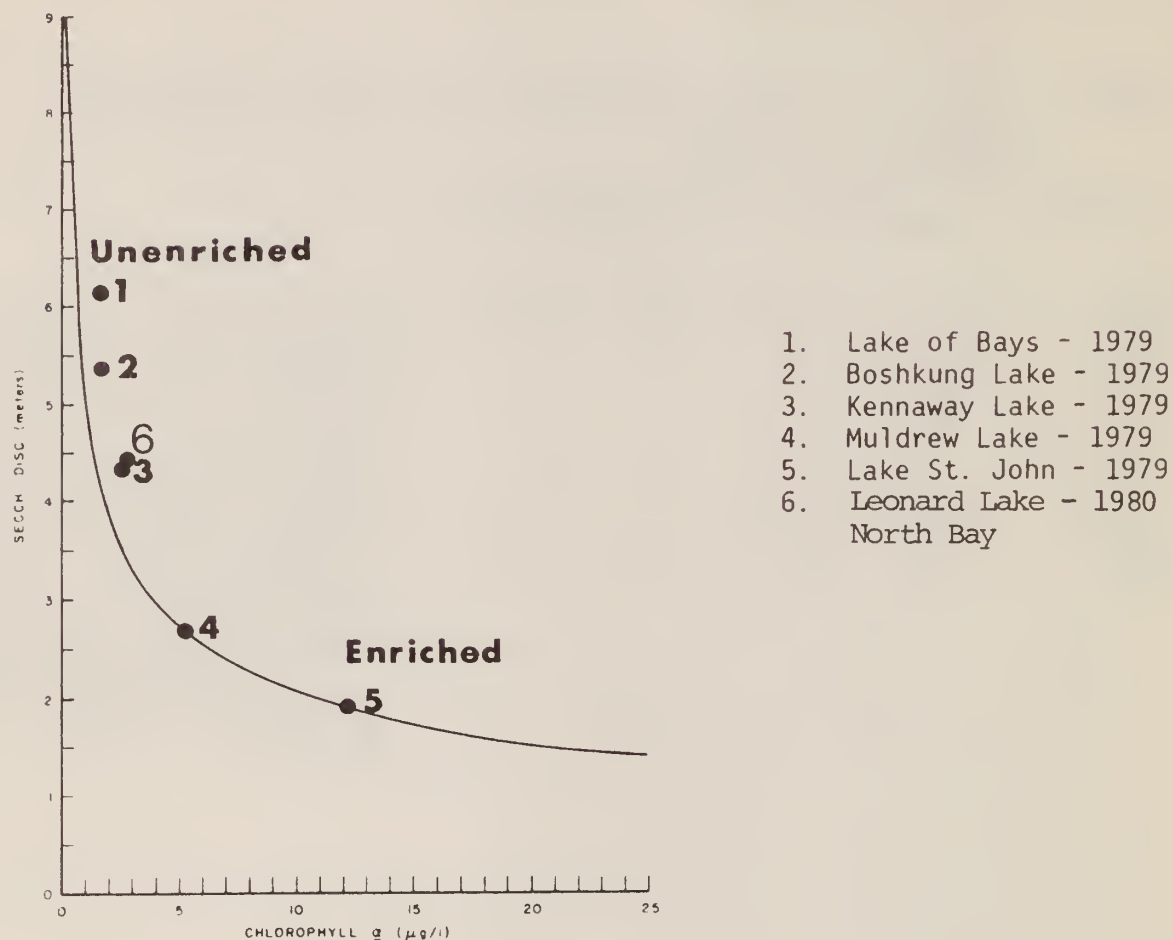
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Leonard Lake in 1971 and 1975 to 1980

Station	North Bay		Shavahnasses Bay		South Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
*1971	5.3	1.8				
1972						
1973						
1974						
1975	5.3	1.5				
1976	6.5	1.7**				
1977	6.0	--			5.2	--
1978	--	--				
1979	4.4	2.3				
1980	4.4	2.8	--	--		

* MOE data

** based on 1 sample

Figure 1: The relationship between Secchi disc and chlorophyll a for Leonard Lake and a number of recreational lakes in the province. All data are seasonal means.



In the six years that the North Bay of Leonard Lake has been sampled for this programme, the seasonal mean Secchi disc readings ranged from 5.3 to 6.5 metres. The seasonal mean chlorophyll a concentration ranged from 1.5 to 2.8 $\mu\text{g/L}$. In the last two years, there seems to have been an increase in densities of suspended algae and a corresponding decrease in the degree of water transparency. It is recommended that participation in this programme be continued in order to determine if this trend continues.

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LITTLE KENNISIS LAKE

Havelock Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Little Kennisis Lake in 1980

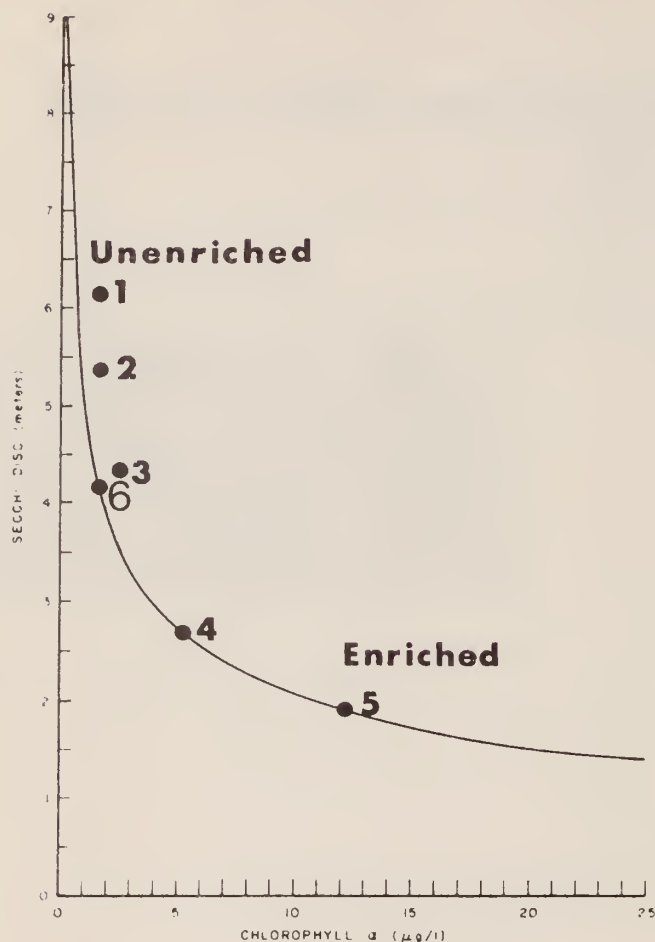
Station	M	
Date	S.D.	Chl.a
June 29	3.2	2.0
July 6	4.5	2.0
July 13	3.75	3.3
July 26	5.0	0.7
Aug. 3	3.5	1.4
Aug. 17	4.75	0.8
Aug. 23	<u>5.0</u>	<u>1.7</u>
Mean	4.2	1.7

The Secchi disc readings varied from 3.2 to 5.0 metres and chlorophyll a concentrations ranged from 0.7 to 3.3 ug/L. Based on the seasonal means for the two parameters monitored, Little Kennisis Lake would be considered unenriched, characterized by a moderately high degree of transparency and low densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Little Kennisis Lake from 1972 and 1980

Station	M	
Year	S.D.	Chl.a
1971		
1972	4.5	1.6
1973	4.8	1.1
1974	5.3	1.1
1975	5.5	1.0
1976	5.3	2.0
1977	6.3	- -
1978	5.5	1.4
1979	- -	- -
1980	4.2	1.7

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Kennisis Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Little Kennisis Lake - 1980

In the eight years that Little Kennisis Lake has been sampled under this programme, the seasonal mean Secchi disc readings have ranged from 4.2 to 6.3. The chlorophyll a concentrations ranged from 1.0 to 2.0 ug/L. There does not seem to be any obvious trend to indicate a change in enrichment status in Little Kennisis Lake, however it is recommended that this programme be continued to determine if this stable lake condition persists.

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LITTLE LAKE

Township of Georgian Bay

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Little Lake in 1980

Station	Main	
Date	S.D.	Chl. <u>a</u>
Aug. 5	3.25	4.3

Insufficient data was collected for any meaningful conclusions to be made.

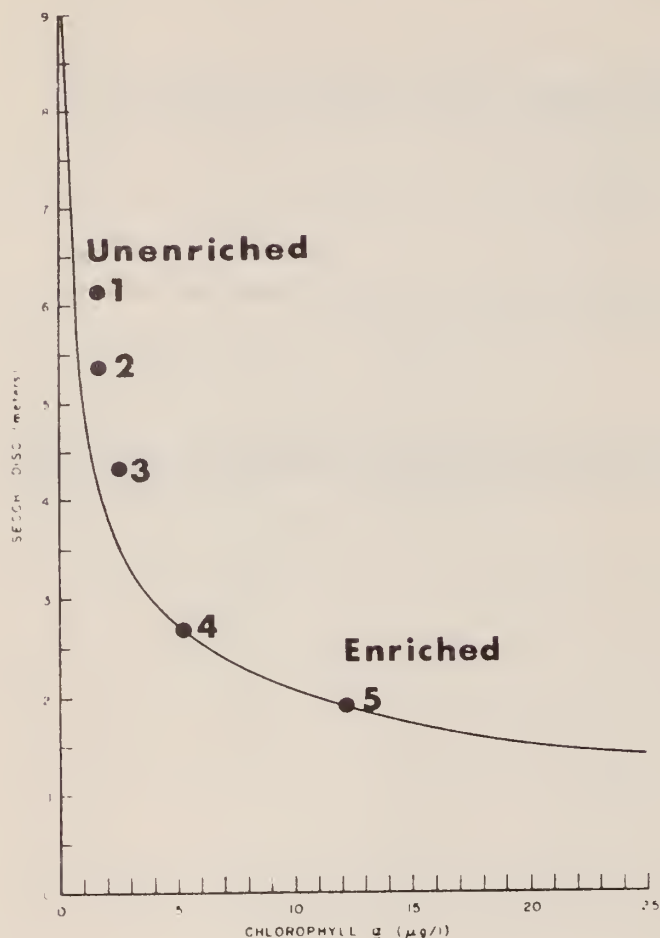
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Little Lake in 1980

Station	Main	
Year	S.D.	Chl. <u>a</u>

1971
1972
1973
1974
1975
1976
1977
1978
1979
1980

- - - -

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979

It is recommended that if this programme is to be continued, at least six samples should be taken throughout the season in order to get a reliable seasonal mean.

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LITTLE STRAGGLE

Township of Harcourt

Provisional County of Haliburton

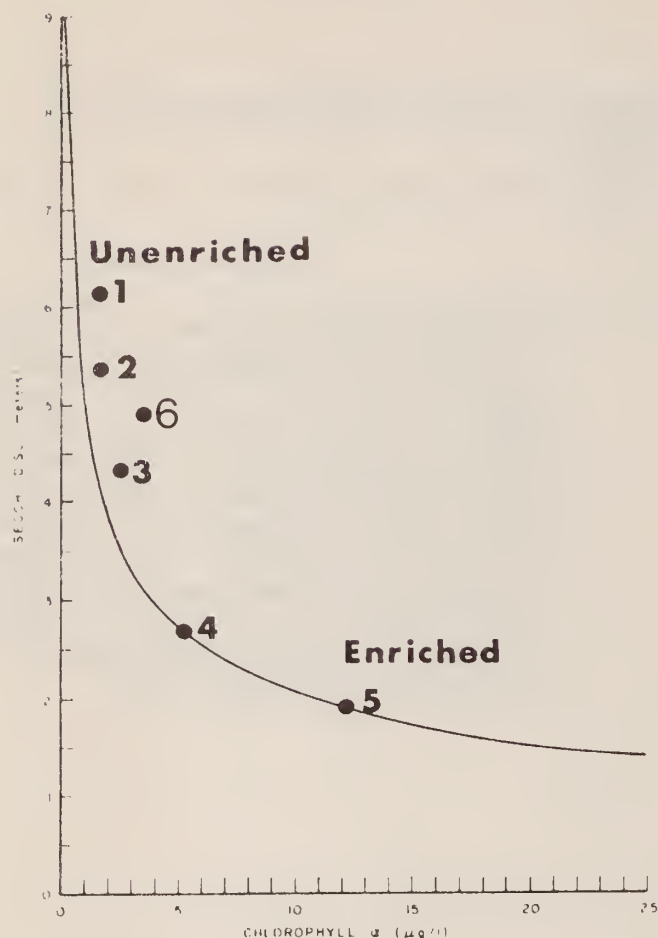
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Little Straggle Lake in 1980

Station	Main		
Date	S.D.	Chlo. <u>a</u>	
May 19	5.6	3.2	The Secchi disc readings varied from 3.75 to 5.9 metres and chlorophyll <u>a</u> concentrations varied from 2.4 to 7.1 ug/L. The lowest degree of water transparency was observed on June 30th and July 6th, 1980 and coincided with the highest densities of suspended algae. Based on the seasonal means for the two parameters monitored, Little Straggle Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately high densities of suspended algae.
June 1	4.60	2.4	
June 30	3.75	6.6	
July 6	3.90	7.1	
July 13	4.40	- -	
July 20	4.60	- -	
July 27	4.6	2.9	
Aug. 4	4.6	3.2	
Aug. 10	5.1	3.1	
Aug. 17	5.7	2.6	
Aug. 24	5.9	3.7	
Aug. 31	<u>5.9</u>	<u>4.1</u>	
Mean	4.9	3.9	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Little Straggle Lake from 1973 to 1980

Station	Main	
Year	S.D.	Chl. <u>a</u>
1971		
1972		
1973	3.8	2.9
1974	3.6	1.6
1975	5.3	2.4
1976	4.1	2.2
1977	5.3	- -
1978	4.6	2.4
1979	4.3	4.0
1980	4.9	3.9

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Little Straggle Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Little Straggle Lake - 1980

In the last eight years, the seasonal mean Secchi disc readings have ranged from 3.6 to 5.3 metres and chlorophyll *a* concentrations have ranged from 1.6 to 4.0 µg/L. There does not seem to be any obvious trend to indicate a change in enrichment status of Little Straggle Lake. It is recommended that this programme be continued to determine if this stable lake condition persists.

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LONG LAKE

Dudley Township

Provisional County of Haliburton

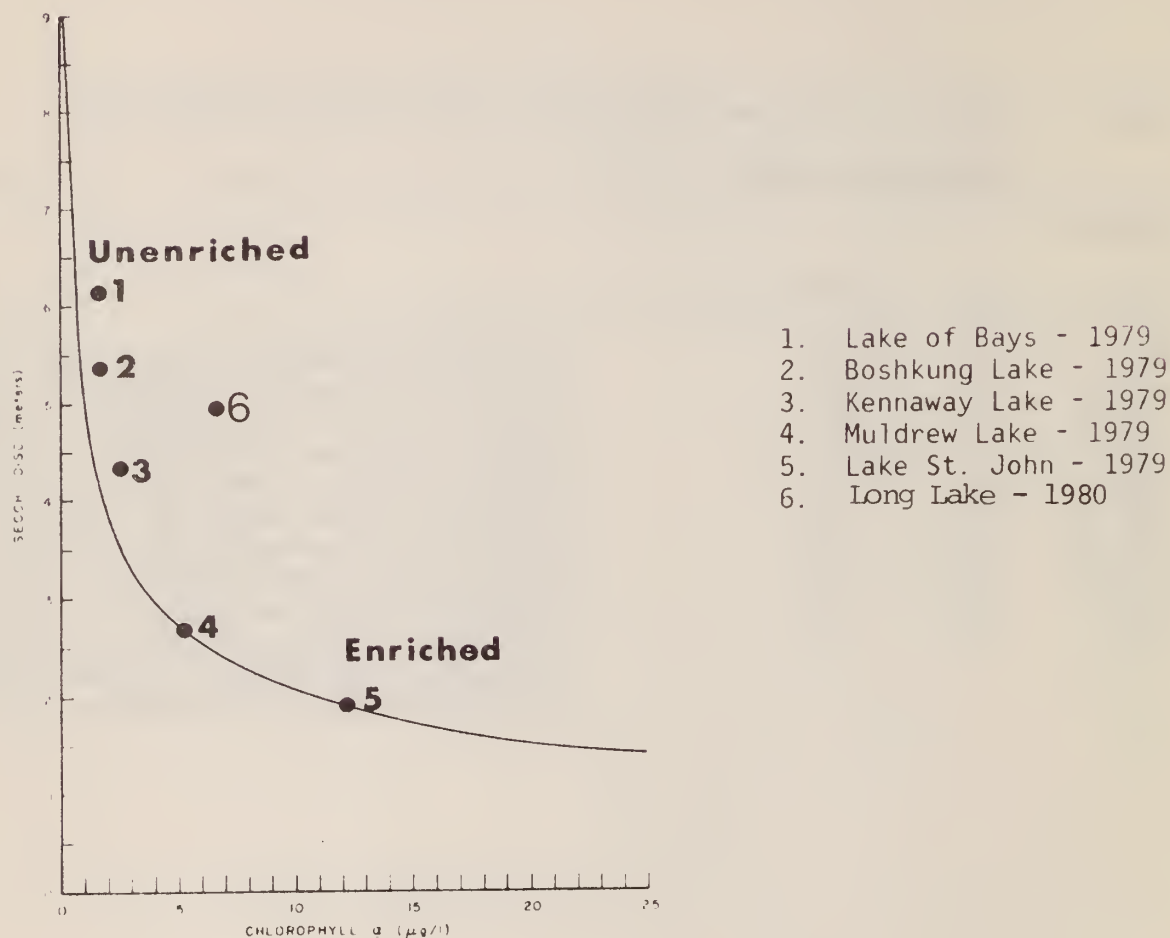
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Long Lake in 1980

Station 1			
Date	S.D.	Chl.a	
May 18	5.5	11.6	Secchi disc readings varied from 4.5 to 5.5 metres and chlorophyll a concentrations varied from 0.8 to 20.0 ug/L during the sampling period. The high chlorophyll a concentrations observed on May 18 and July 27, 1980 could be due to a dense layer of suspended algae occurring below the Secchi disc depth. Based on the seasonal means for these two parameters, Long Lake would be considered moderately enriched characterized by a moderately high degree of water transparency and high densities of suspended algae.
June 8	5.5	0.8	
July 20	4.5	2.9	
July 27	4.5	20.0	
Aug. 4	4.5	1.7	
Aug. 10	4.5	7.0	
Aug. 17	5.5	1.9	
Aug. 24	<u>5.0</u>	<u>6.5</u>	
Mean	4.9	6.6	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Long Lake from 1977 to 1980

Station 1			Station 2	
Year	S.D.	Chl.a	S.D.	Chl.a
1971				
1972				
1973				
1974				
1975				
1976				
1977	5.6	--	6.1	--
1978	6.3	5.0	5.7	4.3
1979	5.6	5.7	--	--
1980	4.9	6.6	--	--

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Long Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last four years at Station 1 seasonal mean Secchi disc readings ranged from 5.6 to 6.3 metres and chlorophyll *a* concentrations ranged from 5.0 to 6.6 ug/L. There may be a slight trend towards decreasing water transparency and increasing chlorophyll *a* concentrations in Long Lake. It is recommended that participation in this programme be continued in order to determine if this trend persists.

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LONG LAKE

Monmouth Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Long Lake in 1980

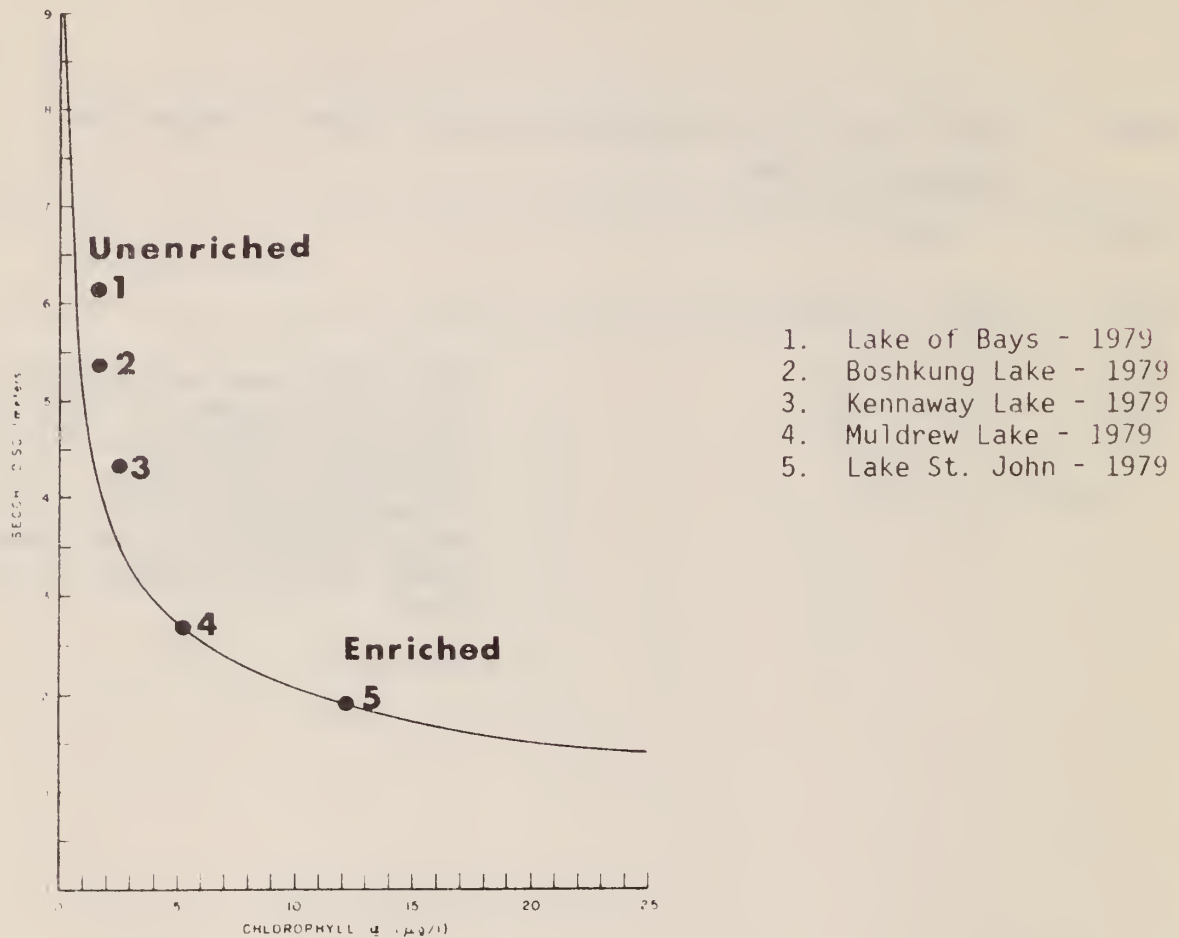
Station	Main	
Date	S.D.	Chl.a
May 19	3.5	6.1
July 6	4.5	2.5

Since Long Lake was sampled on only two occasions in 1980, there is insufficient information to draw meaningful conclusions. It is recommended that at least six samples be taken throughout the season in order to get a reliable seasonal mean.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Long Lake from 1976 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975		
1976	3.8	2.3
1977	3.8	- -
1978	4.0	1.8
1979	4.8	2.7
1980	- -	- -

Figure 1: The relationship between Secchi disc and chlorophyll a for Long Lake and a number of recreational lakes in the province. All data are seasonal means.



If participation in this programme is to be continued, sampling frequency must be increased.

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LOON LAKE

Dysart Township

Provisional County of Haliburton

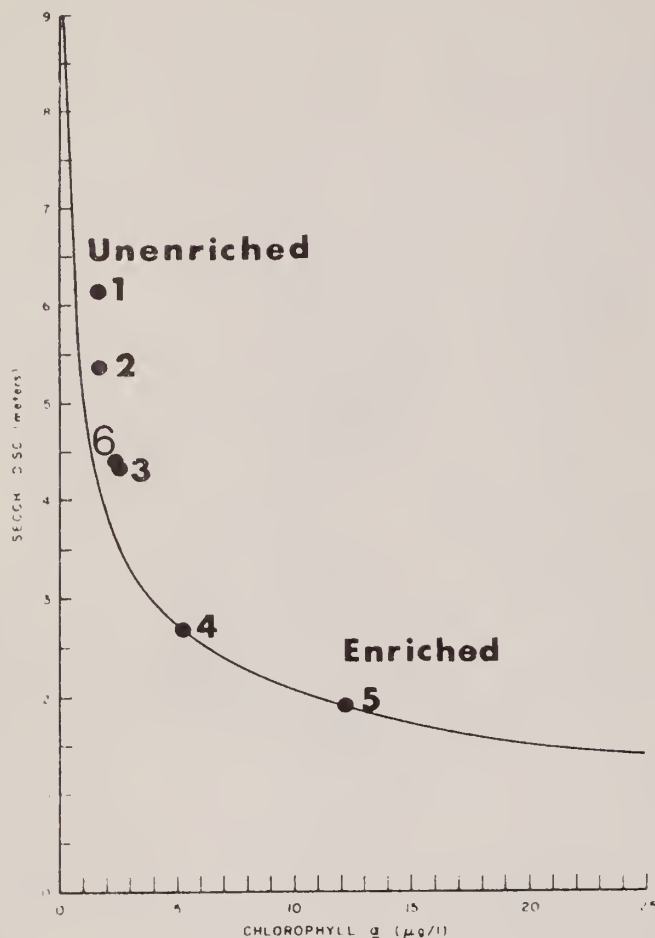
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Loon Lake in 1980

Station	Main		
Date	S.D.	Chl.a	
June 22	6.6	1.6	The Secchi disc reading varied from 3.3 to 6.6 metres and chlorophyll a concentrations varied from 1.6 to 3.3 ug/L during the sampling period. It is recommended that more frequent sampling be done throughout the season in order to get a more reliable seasonal mean. Based on the seasonal means obtained for these two parameters, Loon Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately low densities of suspended algae.
July 13	3.4	3.3	
July 26	3.3	1.9	
Aug. 4	<u>4.3</u>	<u>2.3</u>	
Mean	4.4	2.3	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Loon Lake from 1979 and 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978		
1979	4.8	1.8
1980	4.4	2.3

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Loon Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Loon Lake - 1980

There is still insufficient historical data available from Loon Lake to determine if there are any long-term trends evident in the water quality of Loon Lake. It is recommended that this programme be continued for a number of years in order to determine if the enrichment status of Loon Lake is changing.

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LOONCALL LAKE

Township of Burleigh

County of Peterborough

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Looncall Lake in 1980

Station	23 East		48 West		
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	
May 11	4.5	1.1	4.5	1.5	Another excellent sampling program was carried out on Looncall Lake during 1980. Results from stations at both ends of the lake indicate that the lake is moderately enriched with moderate algal densities. The discrepancy between some individual Secchi disc measurements and corresponding chlorophyll a concentrations may be due to an uneven distribution of algae and a moderate amount of dissolved colour in the water column.
June 1	4.5	2.9	4.0	2.8	
June 12	4.0	2.8	4.5	3.4	
June 26	4.0	4.1	4.0	4.8	
July 13	4.0	2.6	4.0	2.4	
Aug. 4	3.5	2.7	3.5	2.6	
Aug. 24	5.0	2.3	5.0	2.4	
Sept. 7	3.5	2.3	4.0	2.0	
Sept. 18	<u>4.5</u>	<u>2.3</u>	<u>4.0</u>	<u>2.2</u>	
Mean	4.2	2.6	4.2	2.7	

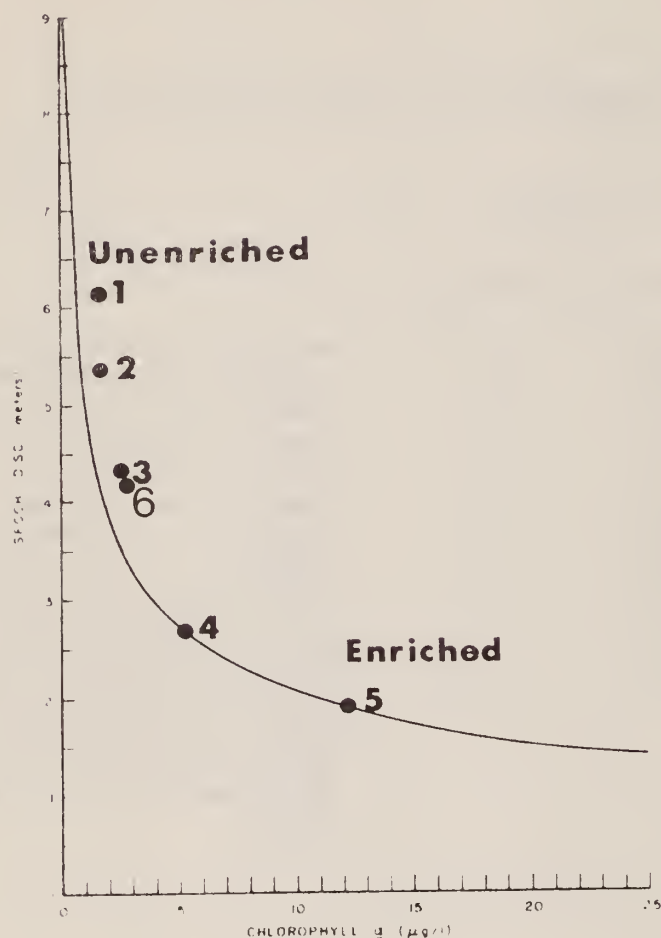
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Looncall Lake from 1971 to 1980

Station	23 East		48 West	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
*1971			4.5	1.5
1972				
1973				
*1974			3.4	1.6
*1975			3.5	1.6
*1976			3.2	3.9
1977	5.5		4.2	- -
1978			4.0	1.1
1979			3.9	3.0
1980	4.2	2.6	4.2	2.7
**1980	3.9	2.4	4.1	2.2

* Main Lake Station

** Samples taken at similar locations by MOE staff

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Looncall Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Looncall Lake - 1980
Station 23

Values shown in Table 2 showed no particular trend in the water quality of Looncall Lake since 1971. Values taken under the Self-Help program compare favourably with the results of MOE Sampling. Continued participation in the sampling program is encouraged.

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MARY LAKE

Town of Huntsville

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Mary Lake in 1980

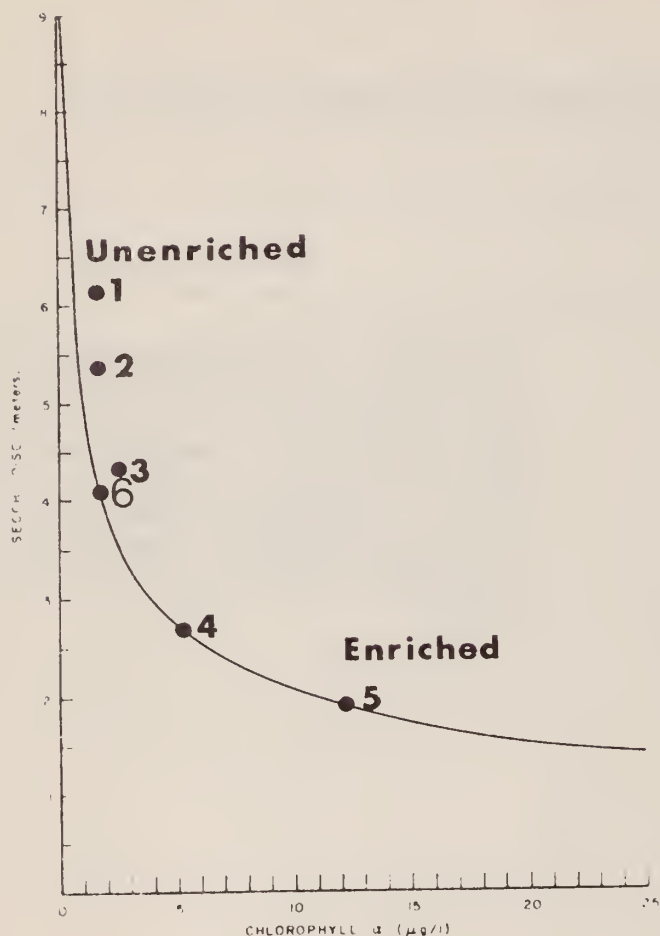
Station	Main	
Date	S.D.	Chl.a
June 9	4.5	0.7
July 7	4.0	1.7
July 20	4.0	1.5
Aug. 5	4.0	2.2
Aug. 17	4.0	2.5
Sept. 1	<u>4.0</u>	<u>2.3</u>
Mean	4.1	1.8

The Secchi disc readings varied from 4.0 to 4.5 metres and chlorophyll a concentrations varied from 0.7 to 2.5 ug/L during the sampling period. Based on the seasonal means for these two parameters, Mary Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and low densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Mary Lake from 1974 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974	4.5	1.7
1975	3.8	1.7
1976	4.1	2.3
1977	4.3	- -
1978	4.2	2.5
1979	4.3	1.6
1980	4.1	1.8

Figure 1. The relationship between Secchi disc and chlorophyll a for Mary Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Mary Lake - 1980

During the last seven years, seasonal mean Secchi disc readings ranged from 3.8 to 4.5 metres and chlorophyll a concentrations ranged from 1.6 to 2.5 ug/L. The overall status of water quality in Mary Lake appears to be stable. Continued participation in this programme is recommended to determine if this condition persists.

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MEDORA LAKE

Township of Muskoka Lakes

District Municipality of Muskoka

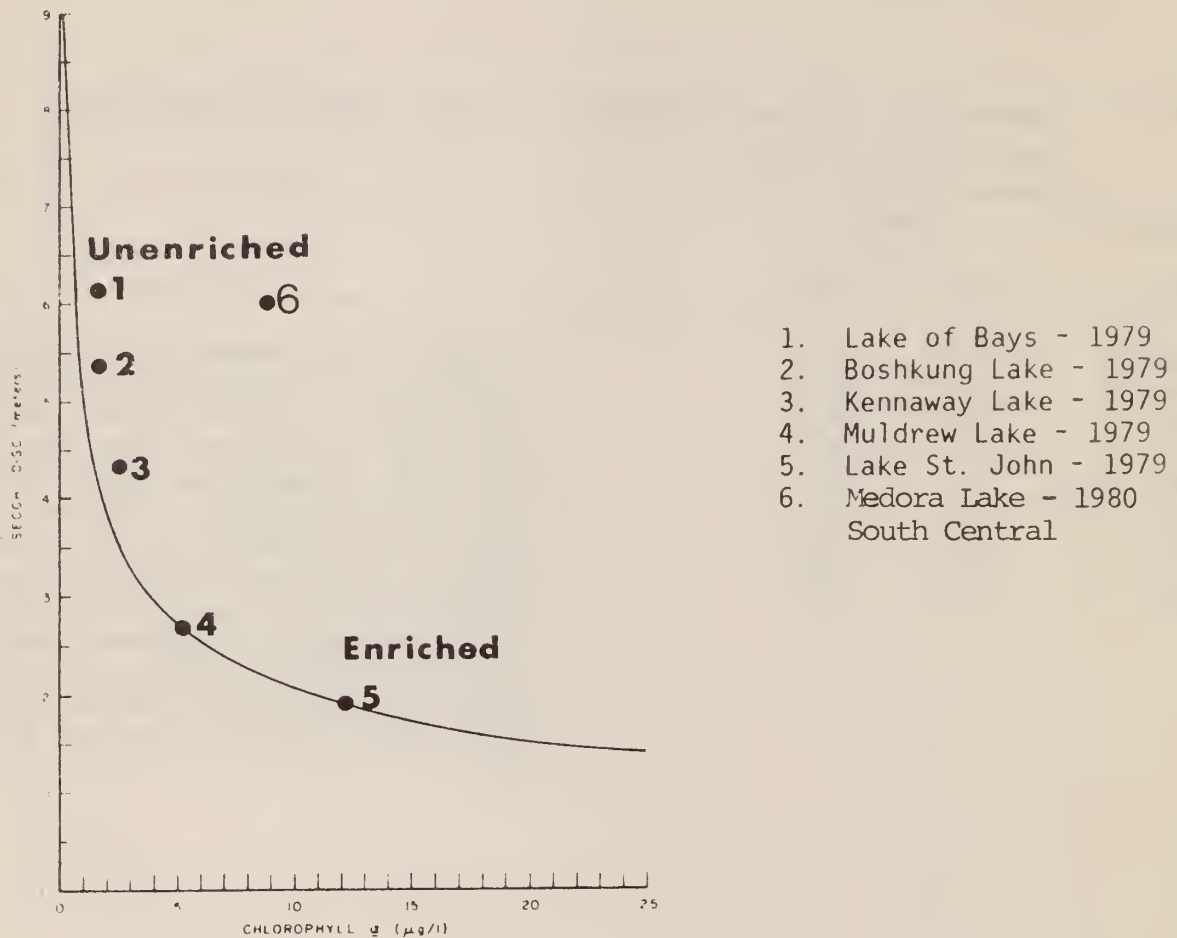
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Medora Lake in 1980

Station	South Central		
Date	S.D.	Chl. <u>a</u>	
July 29	3.5	2.6	The Secchi disc readings varied from 3.5 to 7.5 metres and chlorophyll <u>a</u> concentrations varied from 2.6 to 14.0 ug/L. The high chlorophyll <u>a</u> concentrations observed in August were probably due to an "algae bloom". The overall high degree of water transparency would indicate that the high densities of suspended algae are occurring below the Secchi disc depth. Based on the seasonal means for the two parameters monitored, Medora Lake would be considered moderately enriched, characterized by a high degree of water transparency and high densities of suspended algae.
Aug. 7	3.75	14.0	
Aug. 16	4.5	14.0	
Sept. 7	7.5	11.9	
Sept. 20	7.5	9.5	
Oct. 5	7.5	5.0	
Oct. 19	<u>7.5</u>	<u>3.0</u>	
Mean	6.0	8.6	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Medora Lake 1974 to 1980

Station		
Year	S.D.	Chl. <u>a</u>
1971		
1972		
1973		
1974	3.7	2.0
1975	4.1	9.0
1976	- -	- -
1977	4.1	- -
1978	3.6	3.3
1979	4.9	7.1
1980	6.0	8.6

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Medora Lake and a number of recreational lakes in the province. All data are seasonal means.



During the six years that Medora Lake has been monitored for this programme, seasonal mean Secchi disc readings ranged from 3.6 to 6.0 metres and chlorophyll *a* concentrations ranged from 2.0 to 9.0 µg/L. There seems to be a great deal of fluctuation in the seasonal means from year to year. The reason for this is not apparent, however, it is recommended that participation in this programme be continued in order to determine if this fluctuation continues.

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MISKWABI LAKE

Dudley Township

Provisional County of Haliburton

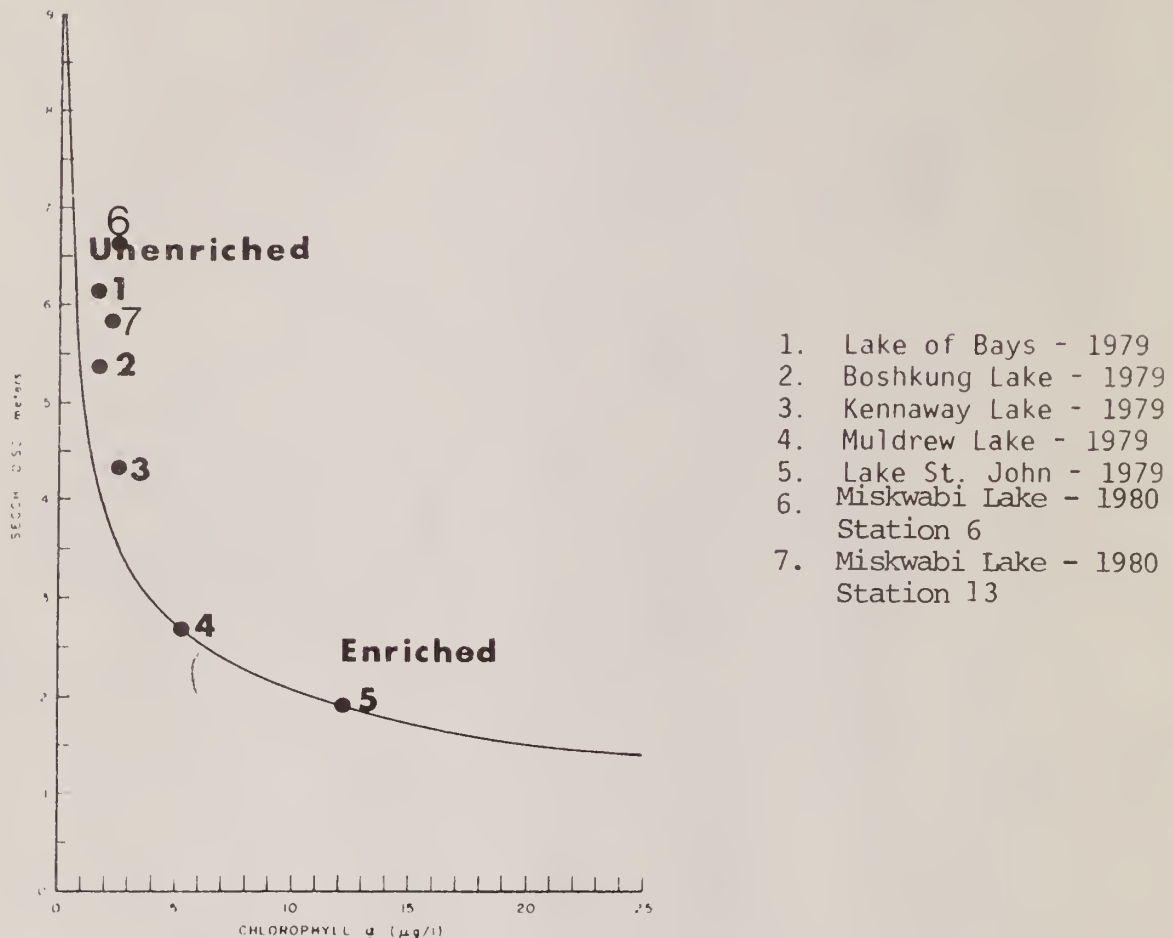
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Miskwabi Lake in 1980

Station	#6		#13		
Date	S.D.	Chl.a	S.D.	Chl.a	
May 19	6.25	3.9	4.75	4.8	The Secchi disc readings at Station 6 varied from 6.25 to 7.0 metres and at Station 13 varied from 4.75 to 6.5 metres. The chlorophyll <u>a</u> concentrations at Station 6 varied from 0.8 to 3.9 ug/L and at Station 13 varied from 0.6 to 4.8 ug/L. Based on the seasonal means for the two parameters monitored, Miskwabi Lake at both stations would be considered un-enriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.
June 22	- -	- -	6.50	0.6	
June 27	7.0	0.8	- -	- -	
July 1	- -	- -	5.0	0.8	
July 6	- -	- -	5.5	1.7	
July 13	7.0	2.8	5.5	2.3	
Aug. 4	6.5	2.7	6.25	2.5	
Aug. 10	- -	- -	6.5	2.4	
Aug. 24	- -	- -	6.5	2.3	
Sept. 1	<u>6.5</u>	<u>2.3</u>	<u>5.75</u>	<u>2.1</u>	
Mean	6.6	2.5	5.8	2.2	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Miskwabi Lake from 1975 to 1980

Station	6		13		
Year	S.D.	Chl.a	S.D.	Chl.a	
1971					
1972					
1973					
1974					
*1975	7.7	1.6	7.0	1.6	
1976	6.4	1.6	5.6	2.2	
1977	7.9	- -	5.9	- -	
1978	6.5	1.5	5.8	2.1	
1979	6.6	1.7	5.6	2.0	
1980	6.6	2.5	5.8	2.2	*MOE Data

Figure 1: The relationship between Secchi disc and chlorophyll a for Miskwabi Lake and a number of recreational lakes in the province. All data are seasonal means.



During the last six years, the seasonal mean Secchi disc readings ranged from 6.4 to 7.9 metres at Station 6 and from 5.6 to 7.0 metres at Station 13. The seasonal mean chlorophyll a concentrations ranged from 1.5 to 2.5 $\mu\text{g/L}$ at Station 6 and from 1.6 to 2.2 $\mu\text{g/L}$ at Station 13. The variations in the seasonal means reflect natural fluctuations and the overall condition of Miskwabi Lake appears to be stable. It is recommended that participation in this programme be continued in order to determine long-term trends in Miskwabi Lake.

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MORRISON LAKE

Town of Gravenhurst

District Municipality of Muskoka

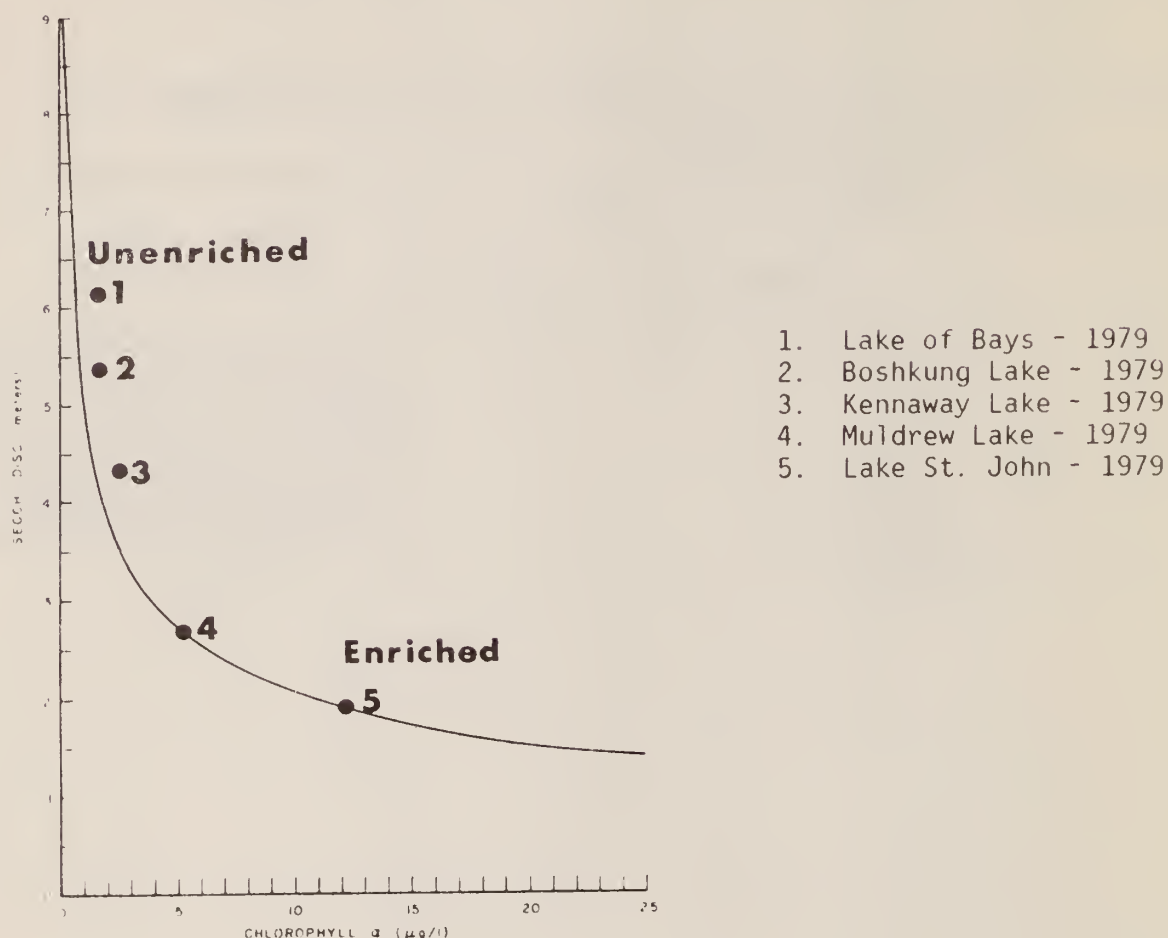
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Morrison Lake in 1980

Station	"A"		"B"		
Date	S.D.	Chl.a	S.D.	Chl.a	
July 27	3.0	2.9	3.5	2.2	Since Morrison Lake was sampled on only one occasion in 1980, it is impossible to make an assessment of the present water quality. At least six samples taken throughout the season are required in order to get a reliable seasonal mean.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Morrison Lake in 1979 and 1980

Station	1		2	
Year	S.D.	Chl.a	S.D.	Chl.a
1971				
1972				
1973				
1974				
1975				
1976				
1977				
1978				
1979	2.3	4.8	2.8	3.9
1980	--	--	--	--

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Morrison Lake and a number of recreational lakes in the province. All data are seasonal means.



If participation in this programme is to be continued it is recommended that the sampling frequency be increased in order to get meaningful data.

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MOUNTAIN LAKE

Minden Township

Provisional County of Haliburton

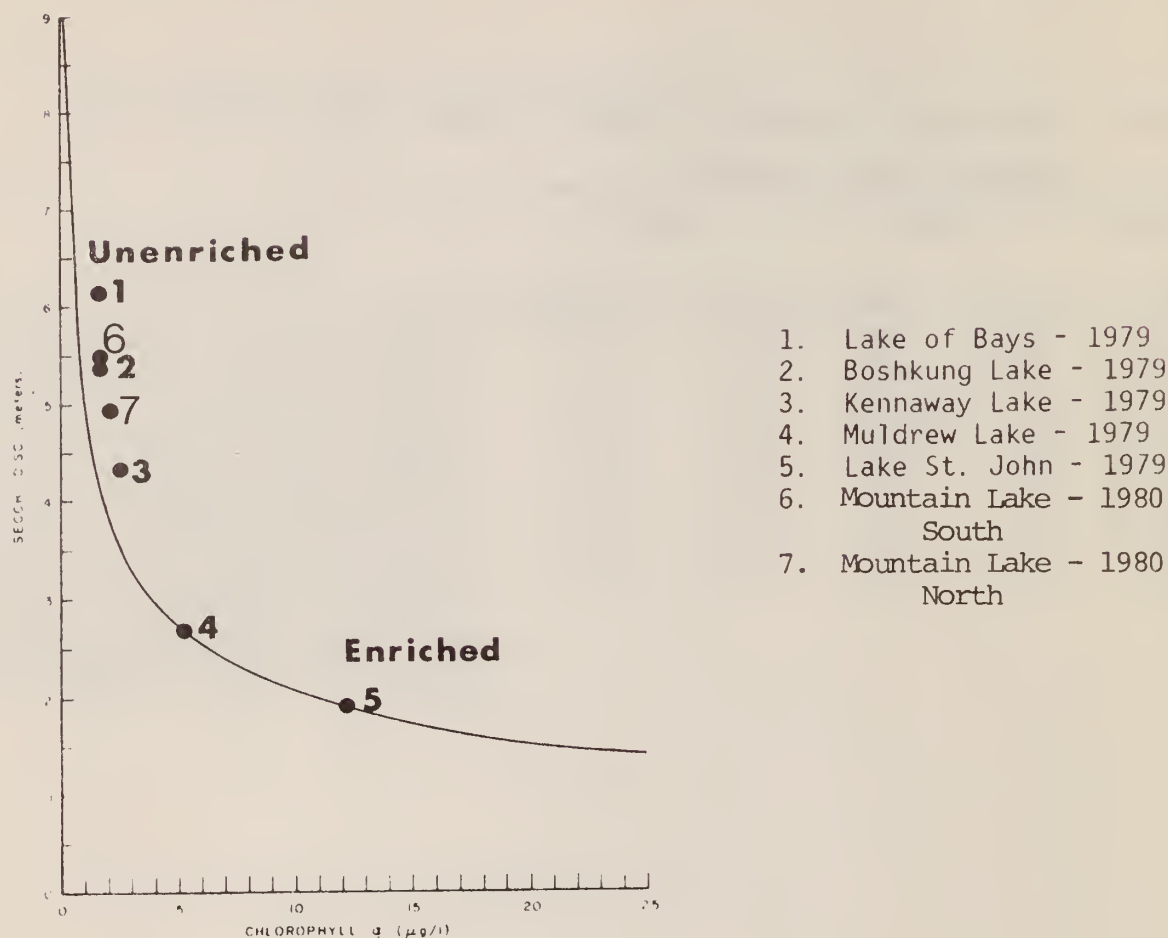
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Mountain Lake in 1980

Station	South		North		
Date	S.D.	Chl.a	S.D.	Chl.a	
July 6	6.0	2.0	5.5	2.2	The Secchi disc readings varied from 4.6 to 7.3 metres at the South station and from 4.0 to 6.4 metres at the North station. Chlorophyll <u>a</u> concentrations varied from 1.4 to 2.7 ug/L at the South station and from 1.3 to 2.7 ug/L at the North station. Based on the seasonal means for the two parameters monitored, Mountain Lake would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae.
July 13	7.3	2.7	6.4	2.7	
July 27	5.5	1.3	5.0	1.4	
Aug. 4	5.5	1.7	4.3	1.8	
Aug. 10	4.6	1.4	4.3	1.5	
Aug. 24	5.5	1.7	5.2	2.4	
Sept. 1	<u>4.3</u>	<u>2.1</u>	<u>4.0</u>	<u>- -</u>	
Mean	5.5	1.7	4.9	2.0	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Mountain Lake in 1979 and 1980

Station	South		North		
Year	S.D.	Chl.a	S.D.	Chl.a	
1971					
1972					
1973					
1974					
1975					
1976					
1977					
1978					
1979	5.9	1.8	5.6	1.6	
1980	5.5	1.7	4.9	2.0	

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Mountain Lake and a number of recreational lakes in the province. All data are seasonal means.



There is still insufficient historical data available for Mountain Lake to determine if there are any water quality trends occurring. It is recommended that participation in this programme be continued in order to determine if the enrichment status of Mountain Lake is changing.

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MULDREW LAKE

Town of Gravenhurst

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Mulldrew Lake in 1980

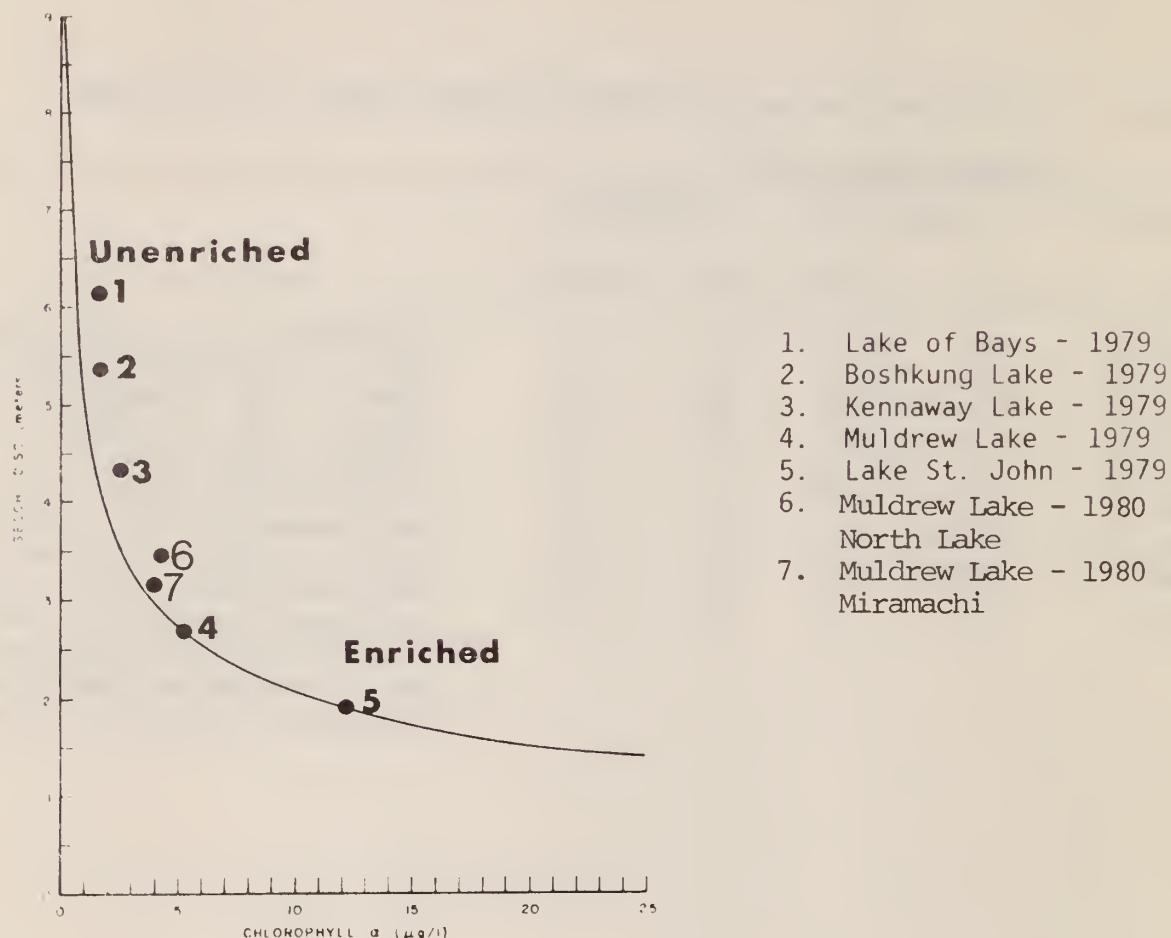
Station	North Lake		Miramachi		
Date	S.D.	Chl.a	S.D.	Chl.a	
July 1	5.1	4.4	- -	- -	The Secchi disc readings varied from 2.66 to 5.1 metres at North Lake and from 2.66 to 3.5 metres at Miramachi station. The chlorophyll <u>a</u> concentrations varied from 2.7 to 5.9 ug/L at North Lake and from 2.5 to 5.2 ug/L at Miramachi station. Based on the seasonal means for the two parameters monitored, Mulldrew Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderately high densities of suspended algae.
July 6	2.66	5.2	2.75	5.2	
July 13	2.66	4.0	2.66	3.4	
July 20	3.50	3.6	3.50	4.3	
July 27	3.50	3.6	- -	- -	
Aug. 3	3.50	2.7	3.50	2.5	
Aug. 10	3.25	5.9	- -	- -	
Sept. 1	<u>3.65</u>	<u>2.8</u>	<u>3.0</u>	<u>3.4</u>	
Mean	3.5	4.0	3.1	3.8	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Mulldrew Lake in 1976 to 1980

Station	North		Throw		Miramachi	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971						
1972						
1973						
1974						
1975						
1976	3.9	2.9	3.3	3.8		
1977	3.7	- -				
*1978	3.0	1.9				
1979	2.7	5.0				
1980	3.5	4.0			3.1	3.8

* based on two samples

Figure 1: The relationship between Secchi disc and chlorophyll a for Muldrew Lake and a number of recreational lakes in the province. All data are seasonal means.



In the last five years, the seasonal mean Secchi disc reading of North Lake ranged from 2.7 to 3.9 metres and the chlorophyll a concentration ranged from 1.9 to 5.0 ug/L. There is some variation in seasonal means from year to year but this could be due to natural fluctuation. Insufficient data has been collected from Throw and Miramachi stations to make any assessment of water quality trends. It is recommended that participation in this programme be continued in order to determine any changes in enrichment status of Muldrew Lake.

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MUSKOKA BAY

Town of Gravenhurst

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Muskoka Bay in 1980

Station	1		2		3	
	Parker's Point		Cliff Rock		Centre Bay	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
May 25	4.0	2.6	3.0	2.9	3.0	1.8
June 22	2.0	20.0	2.0	12.0	2.0	15.0
July 6	3.8	5.8	3.5	5.6	4.6	4.8
July 27	- -	- -	- -	- -	2.0	13.0
Aug. 3	1.2	7.7	1.2	11.1	1.2	12.7
Aug. 17	1.1	17.6	1.25	8.3	1.1	15.6
Sept. 7	1.4	11.0	1.2	12.2	1.2	17.6
Sept. 21	1.7	6.0	1.0	1.0	1.6	1.2
Oct. 13	2.4	1.7	1.8	1.4	2.1	1.7
Mean	2.2	9.0	2.0	6.8	3.7	9.3

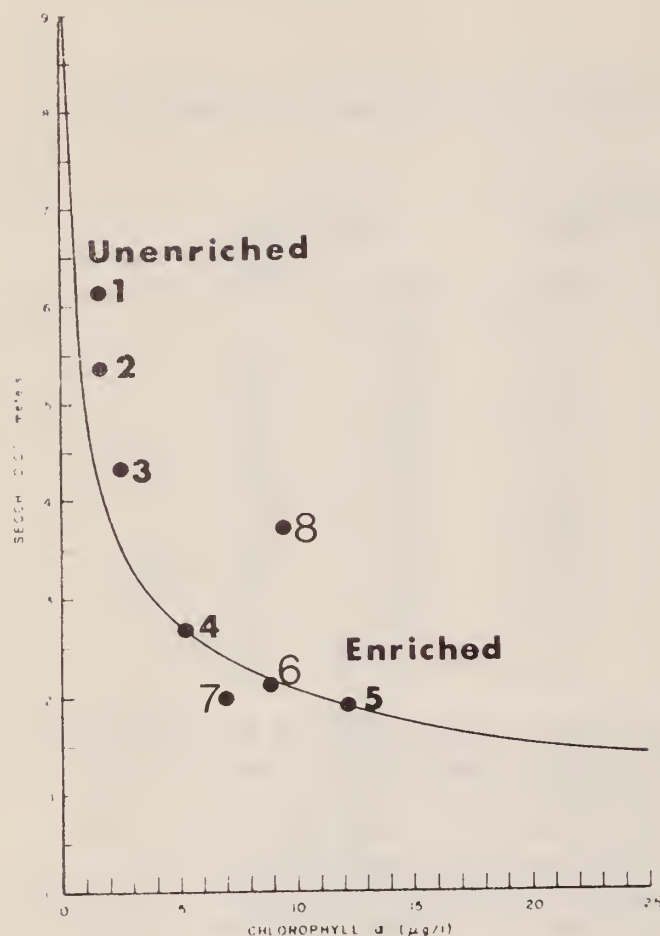
The Secchi disc readings at Parker's Point varied from 1.1 to 4.0 metres, at Cliff Rock from 1.2 to 3.5 metres and at Centre Bay from 1.1 to 4.6 metres. The chlorophyll a concentrations varied from 1.7 to 20.0 ug/L at Parker's Point, from 1.0 to 12.0 ug/L at Cliff Rock and from 1.2 to 17.6 ug/L at Centre Bay. Based on the seasonal means for the two parameters monitored, Muskoka Bay would be considered enriched, characterized by a low degree of water transparency and high densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Muskoka Bay from 1971 to 1980

Station	1		2		3	
	Parker's Point		Cliff Rock		Centre Bay	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
*1971	1.9	13.8				
*1972	3.1	8.1				
*1973	3.2	6.9				
*1974	2.7	5.0				
*1975	3.9	5.0				
*1976	3.7	10.6				
1977	4.3	- -	4.1	- -		
1978	4.8	2.5	4.8	2.3		
1979	- -	- -	- -	- -		
1980	2.2	9.0	2.0	6.8	3.7	9.3

* MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Muskoka Bay and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Muskoka Bay - 1980
Station 1
7. Muskoka Bay - 1980
Station 2
8. Muskoka Bay - 1980
Station 3

In 1980, the seasonal mean Secchi disc readings at Stations 1 and 2 decreased noticeably from readings obtained in 1978. The seasonal mean chlorophyll a concentrations in 1980 increased noticeably from 1978. The reason for these changes is not yet apparent, however, it is recommended that participation in this programme be continued in order to determine if this trend persists.

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NINE MILE LAKE

Township of Muskoka Lakes

District Municipality of Muskoka

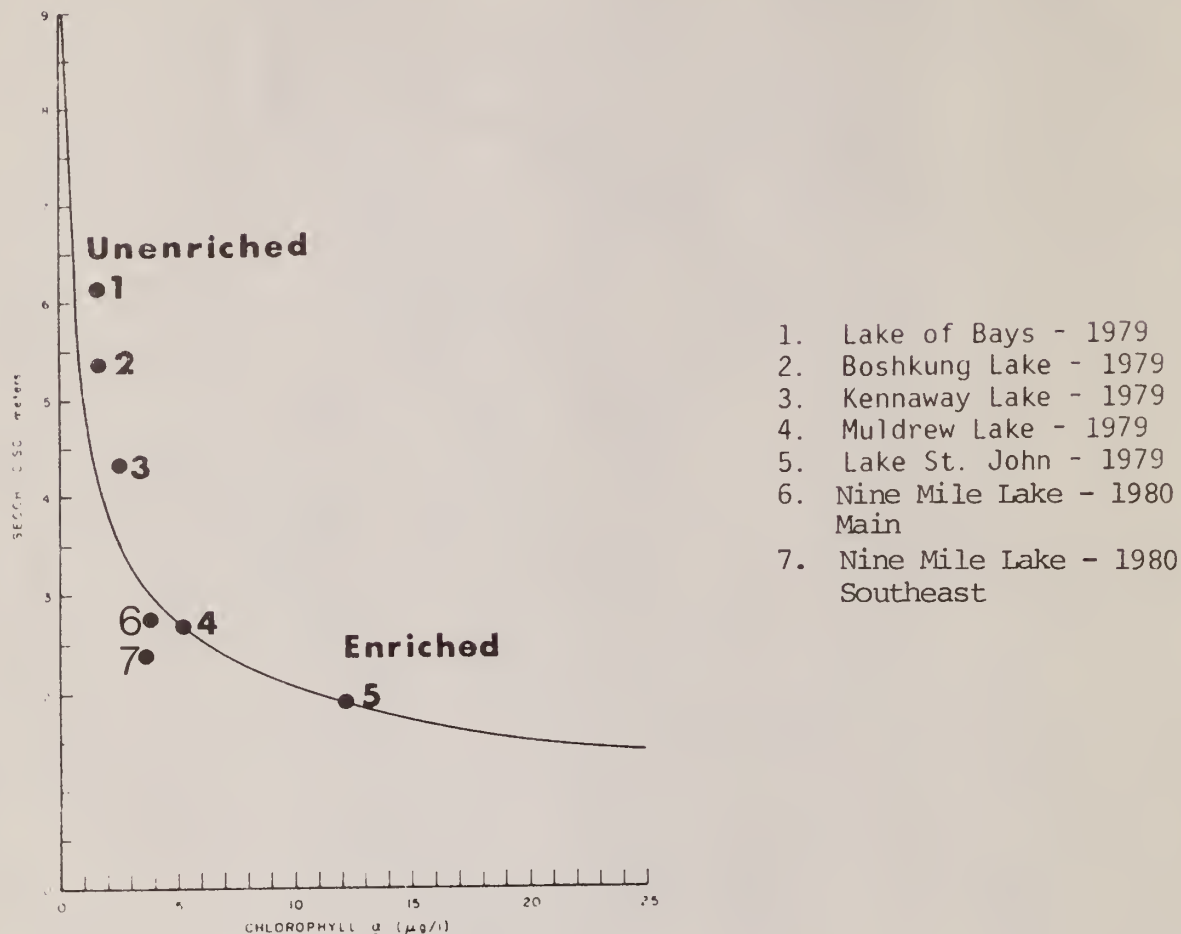
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Nine Mile Lake in 1980

Station	Main		Southeast		
Date	S.D.	Chl.a	S.D.	Chl.a	
May 19	- -	- -	2.4	4.1	The Secchi disc readings varied from 2.0 to 3.5 metres at the Main station and from 1.7 to 2.6 metres at the Southeast station. The chlorophyll <u>a</u> concentrations varied considerably from 2.3 to 8.1 ug/L at the Main station and from 1.2 to 7.8 ug/L at the Southeast station. The lowest degree of water transparency occurred June 22, 1980 and coincided with the highest density of suspended algae. Based on the seasonal means for the two parameters monitored, Nine Mile Lake would be considered enriched, characterized by a low degree of water transparency and moderately high densities of suspended algae.
June 6	- -	- -	2.4	3.1	
June 22	2.0	8.1	1.7	7.8	
June 30	2.0	5.4	- -	- -	
July 6	- -	- -	2.5	4.2	
July 7	2.5	3.1	- -	- -	
July 14	3.5	2.5	- -	- -	
July 20	- -	- -	2.6	3.6	
July 21	3.0	3.2	- -	- -	
July 27	3.0	4.1	- -	- -	
Aug. 4	2.5	2.6	2.5	1.8	
Aug. 11	2.5	2.3	- -	- -	
Aug. 17	- -	- -	2.25	3.8	
Aug. 25	2.5	4.1	- -	- -	
Sept. 7	2.3	2.9	- -	- -	
Sept. 15	2.5	3.1	- -	- -	
Sept. 21	- -	- -	2.2	1.2	
Oct. 13	<u>2.5</u>	<u>3.9</u>	<u>- -</u>	<u>- -</u>	
Mean	2.7	3.8	2.3	3.7	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Nine Mile Lake in 1979 and 1980

Station	Main		Southeast	
Year	S.D.	Chl.a	S.D.	Chl.a
1971				
1972				
1973				
1974				
1975				
1976				
1977				
1978				
1979	2.9	5.0		
1980	2.7	3.8	2.3	3.7

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Nine Mile Lake and a number of recreational lakes in the province. All data are seasonal means.



There is insufficient historical data available for Nine Mile Lake to determine if there are any long-term trends occurring in the water quality of the lake. It is recommended that this programme be continued for a number of years in order to determine if the enrichment status of Nine Mile Lake is changing.

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PERCY LAKE

Harburn Township

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Percy Lake in 1980

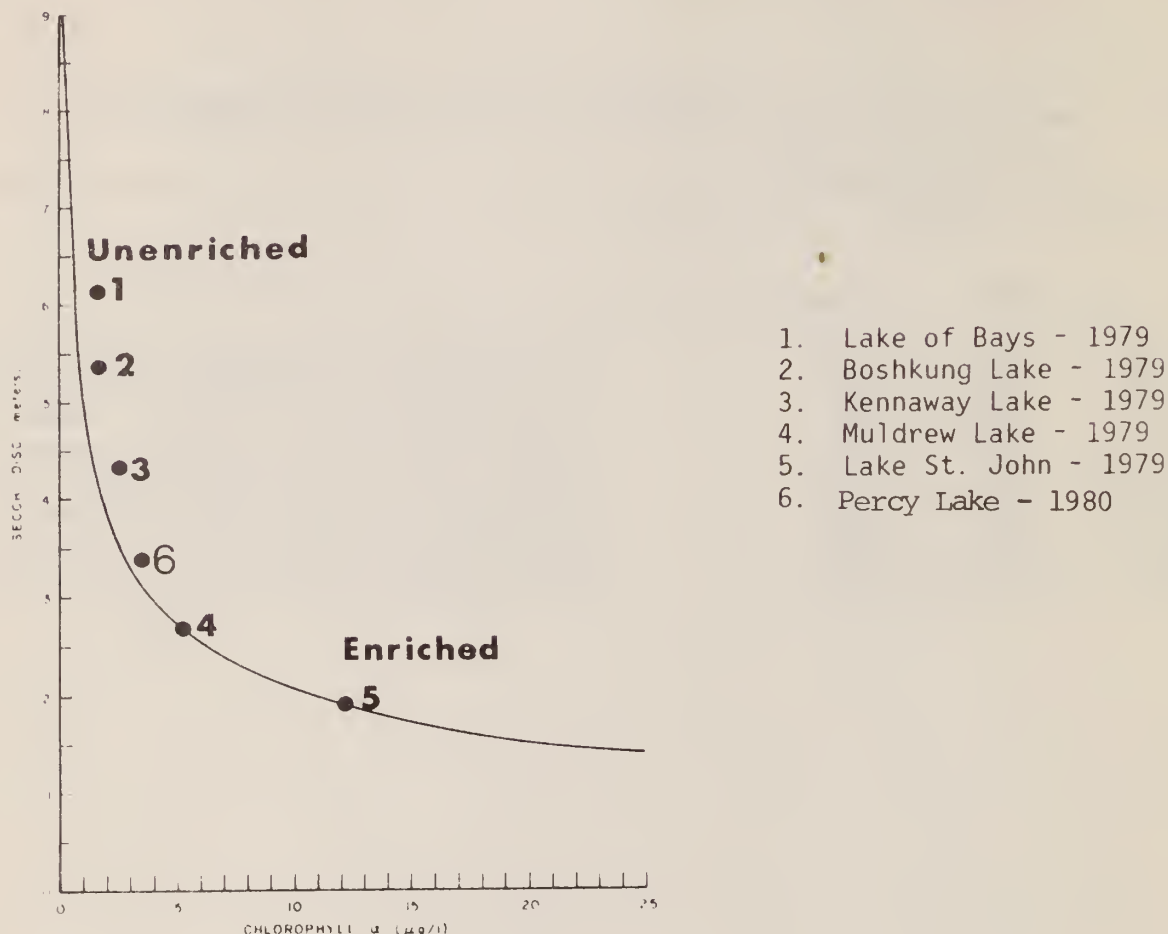
Station	Main	
Date	S.D.	Chl. <u>a</u>
May 25	2.29	3.1
June 22	- -	2.0
July 6	3.75	2.4
July 27	3.75	4.7
Aug. 10	3.75	4.3
Aug. 24	3.25	4.3
Sept. 1	<u>3.25</u>	<u>2.0</u>
Mean	3.3	3.3

The Secchi disc readings varied from 2.29 to 3.75 metres and chlorophyll a concentrations varied from 2.0 to 4.7 ug/L. Based on the seasonal means for the two parameters monitored, Percy Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Percy Lake from 1978 to 1980

Station	Main	
Year	S.D.	Chl. <u>a</u>
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	4.1	2.2
1979	4.4	2.1
1980	3.3	3.3

Figure 1: The relationship between Secchi disc and chlorophyll a for Percy Lake and a number of recreational lakes in the province. All data are seasonal means.



In the last three years, the seasonal mean Secchi disc readings ranged from 3.3 to 4.4 metres and chlorophyll a concentrations ranged from 2.1 to 3.3 $\mu\text{g/L}$. In 1980, there seems to have been a slight decrease in the degree of water transparency and a slight increase in the densities of suspended algae. It is recommended that participation in this programme be continued to determine if this trend persists or is due to natural fluctuation.

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PINE LAKE

Town of Bracebridge

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Pine Lake in 1980

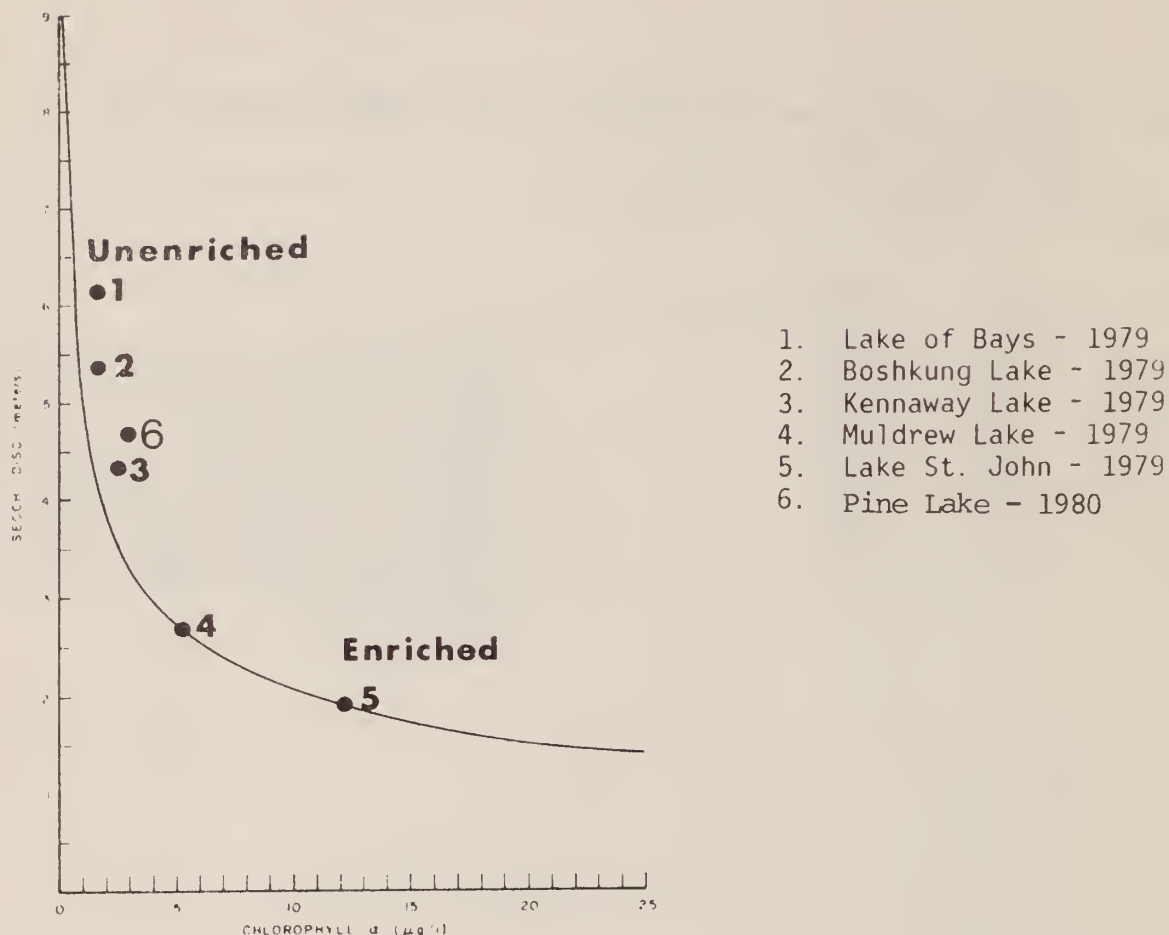
Station	Main	
Date	S.D.	Chl.a
June 30	4.33	3.8
July 13	4.70	4.6
July 27	4.10	3.8
Aug. 9	5.20	2.5
Aug. 23	5.0	1.7
Sept. 8	<u>5.0</u>	<u>2.2</u>
Mean	4.7	3.1

The Secchi disc readings varied from 4.1 to 5.2 metres and chlorophyll a concentrations varied from 1.7 to 4.6 ug/L. Based on the seasonal means for the two parameters monitored, Pine Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Pine Lake in 1974, 1975, 1977, 1979 and 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974	5.0	1.5
1975	5.7	1.8
1976	- -	- -
1977	5.0	- -
1978	- -	- -
1979	4.4	2.1
1980	4.7	3.1

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Pine Lake and a number of recreational lakes in the province. All data are seasonal means.



In the five years that Pine Lake has been monitored for this programme, the seasonal mean Secchi disc readings ranged from 4.4 to 5.7 metres and chlorophyll *a* concentrations ranged from 1.5 to 3.1 ug/L. Since 1974 when the Self-Help programme was initiated on Pine Lake, the enrichment status has changed from unenriched to moderately enriched. It is recommended that participation in this programme be continued in order to determine if this trend persists.

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PINE LAKE

Town of Gravenhurst

District Municipality of Muskoka

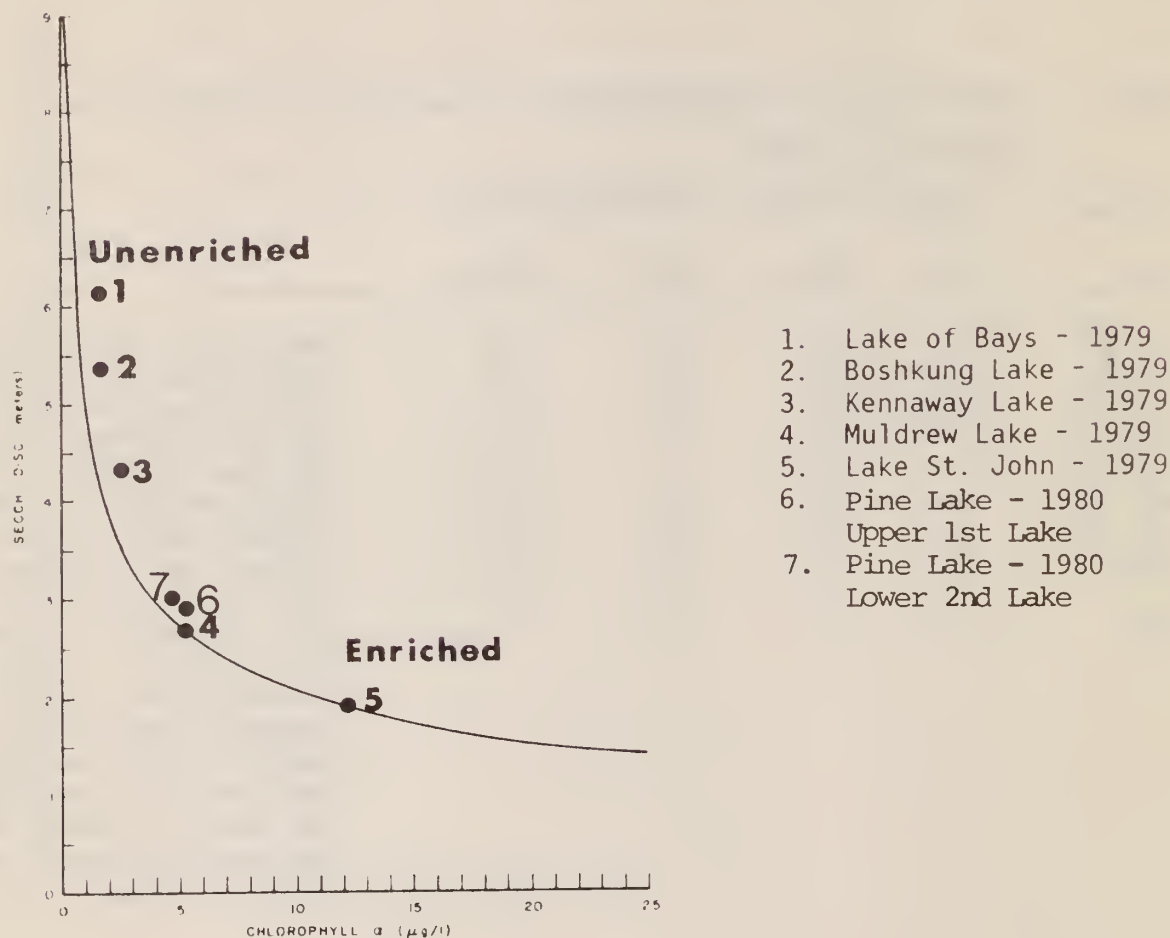
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Pine Lake in 1980

Station	Upper 1st Lake		Lower 2nd Lake		
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	
May 19	2.5	5.6	2.5	5.9	The Secchi disc readings varied from 2.5 to 3.25 metres at the Upper 1st Lake station and from 2.5 to 3.3 metres at the Lower 2nd Lake station. The chlorophyll <u>a</u> concentrations varied from 2.4 to 6.7 ug/L at the Upper 1st Lake station and from 2.9 to 6.8 ug/L at the Lower 2nd Lake station. Based on the seasonal means for the two parameters monitored, Pine Lake would be considered enriched, characterized by a low degree of water transparency and high densities of suspended algae.
June 8	3.25	2.4	3.0	2.9	
June 30	2.75	6.7	3.1	4.9	
July 6	3.2	5.3	3.3	5.2	
July 27	- -	5.2	- -	6.8	
Aug. 10	2.9	6.7	3.3	5.9	
Aug. 24	3.1	5.5	3.0	3.9	
Sept. 28	<u>2.5</u>	<u>3.4</u>	<u>2.6</u>	<u>3.3</u>	
Mean	2.9	5.1	3.0	4.8	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Pine Lake in 1979 and 1980

Station	Upper 1st Lake		Lower 2nd Lake	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
1971				
1972				
1973				
1974				
1975				
1976				
1977				
1978				
1979	3.4	2.8	3.4	3.2
1980	2.9	5.1	3.0	4.8

Figure 1: The relationship between Secchi disc and chlorophyll a for Pine Lake and a number of recreational lakes in the province. All data are seasonal means.



In the two years that Pine Lake has been monitored for this programme, the degree of water transparency has decreased slightly and densities of suspended algae have increased slightly. It is recommended that participation in this programme be continued in order to determine if this is a trend or if it is due to natural fluctuation.

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RIL LAKE

Township of Lake of Bays

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Ril Lake in 1980

Station	Main	
Date	S.D.	Chl.a
July 9	2.28	4.4
July 23	2.44	3.3
Aug. 6	2.74	3.7
Aug. 19	2.74	3.3
Sept. 3	2.44	7.3
Sept. 17	<u>2.13</u>	<u>5.1</u>
Mean	2.5	4.5

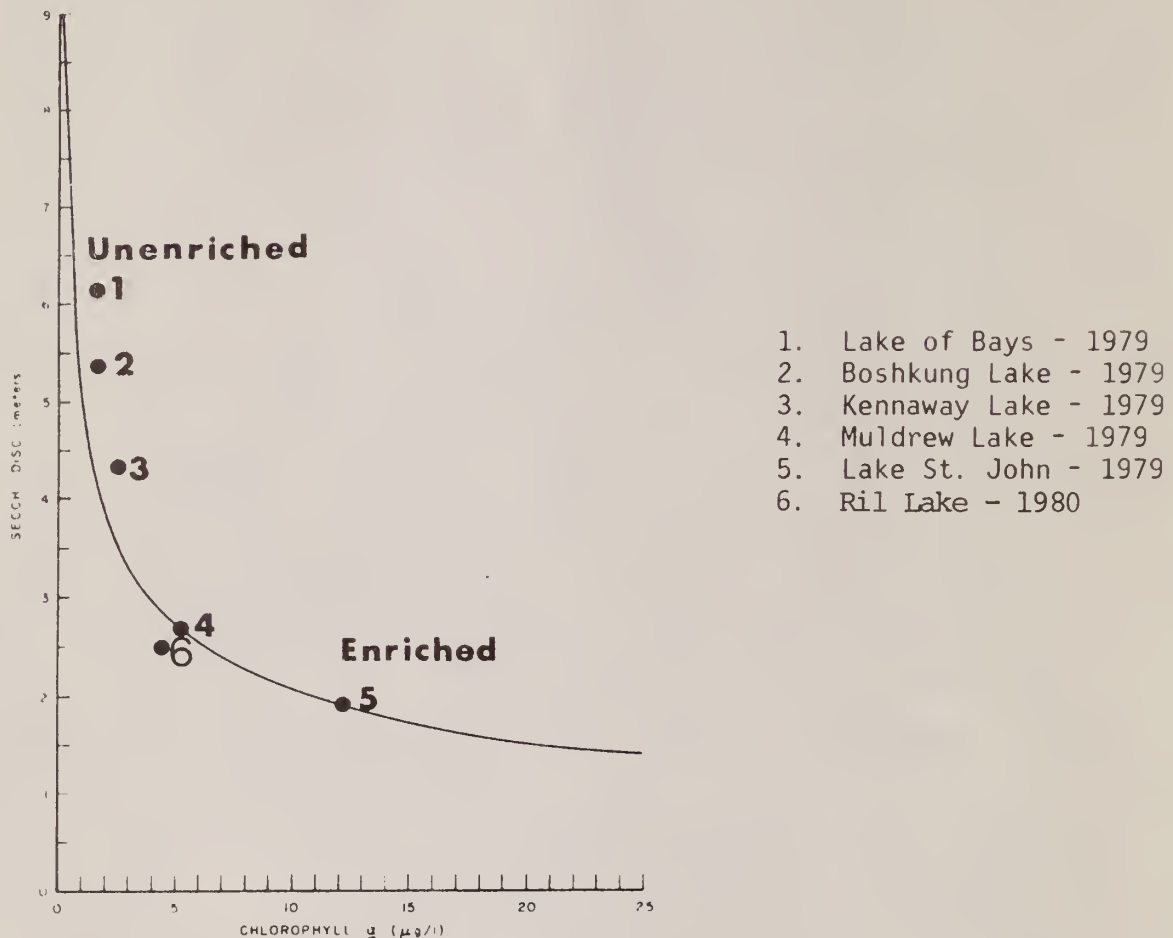
The Secchi disc readings varied from 2.13 to 2.74 metres and chlorophyll a concentrations varied from 3.3 to 7.3 ug/L. There is very little fluctuation in values throughout the season. Based on seasonal means for the two parameters monitored, Ril Lake would be considered enriched, characterized by a low degree of water transparency and a high densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Ril Lake in 1972, 1976 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
*1972	2.5	4.3
1973		
1974		
1975		
1976	3.3	3.9
1977	3.0	- -
1978	3.1	3.8
1979	2.5	5.1
1980	2.5	4.5

*MOE data

Figure 1: The relationship between Secchi disc and chlorophyll a for Ril Lake and a number of recreational lakes in the province. All data are seasonal means.



In the six years that Ril Lake has been monitored, the seasonal mean Secchi disc readings ranged from 2.5 to 3.3 metres and chlorophyll a concentrations ranged from 3.8 to 5.1 ug/L. There does not seem to be any obvious trend of water quality change in Ril Lake as 1980 values are very similar to 1972 values. It is recommended that participation in this programme be continued, in order to monitor future water quality trends.

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SALERNO LAKE

Snowdon and Glamorgan Townships

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Salerno Lake in 1980

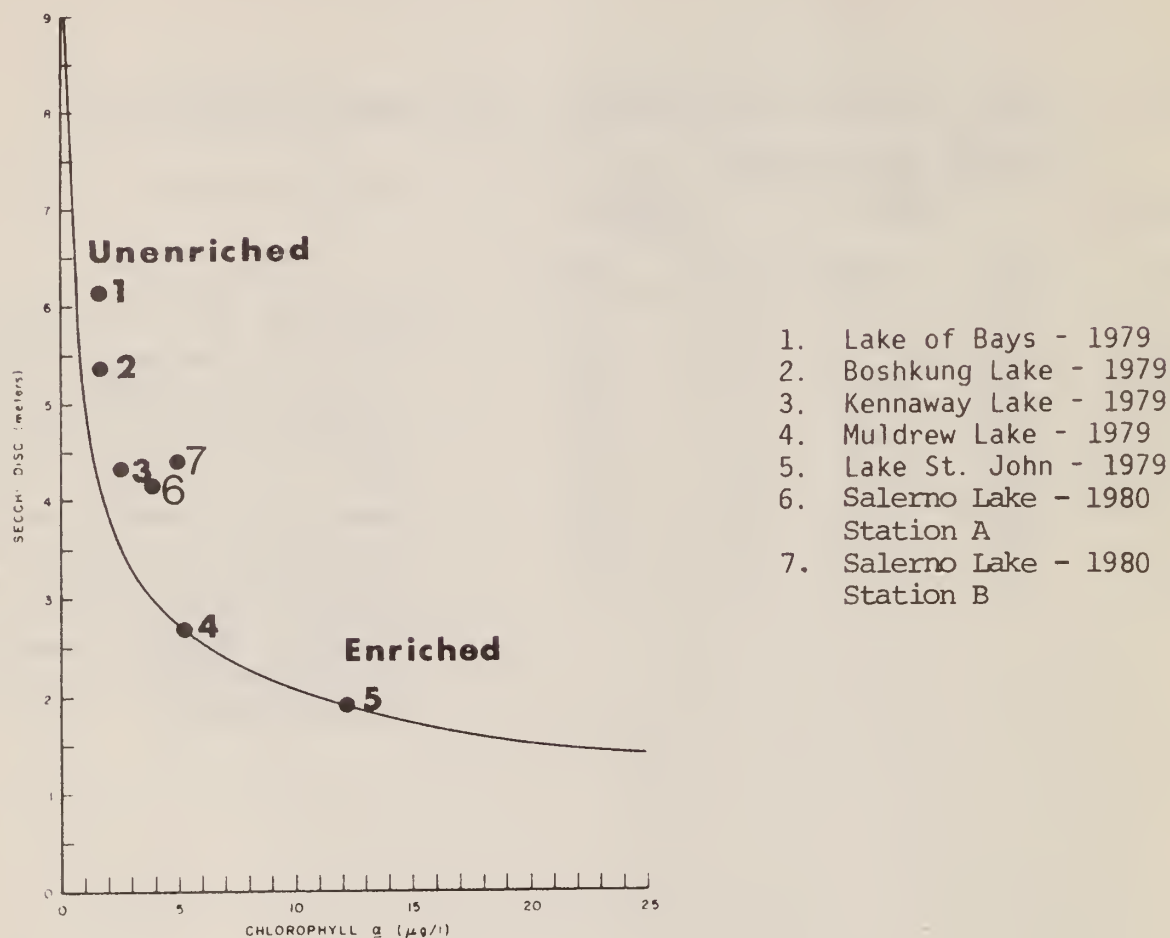
Station	^A (South)		^B (North)		
Date	S.D.	Chl.a	S.D.	Chl.a	
May 19	3.75	- -	4.0	7.4	The Secchi disc readings varied from 3.75 to 4.5 metres at station A and from 4.0 to 5.0 metres at station B. Chlorophyll a concentrations varied from 3.0 to 4.9 ug/L at station A and from 3.6 to 7.4 ug/L at station B. Based on the seasonal means for the two parameters monitored, Salerno Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderately high densities of suspended algae.
July 20	4.50	4.1	5.0	3.6	
July 27	4.0	3.0	4.5	4.7	
Aug. 10	4.0	3.1	4.0	4.7	
Aug. 17	4.5	3.8	4.5	3.8	
Aug. 24	4.0	4.1	4.0	5.8	
Sept. 1	4.5	4.9	5.0	3.6	
Mean	4.2	3.8	4.4	4.8	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Salerno Lake from 1973 to 1980

Station	^A (South)		^B (North)		
Year	S.D.	Chl.a	S.D.	Chl.a	
1971					
1972					
*1973	6.0	1.9			
1974	- -	- -			
1975	3.6	4.0	4.5	2.2	
1976	3.6	3.0	3.9	2.6	
1977	4.1	- -	4.4	- -	
1978	4.0	3.7	4.3	3.0	
1979	5.0	3.7	5.0	3.7	
1980	4.2	3.8	4.4	4.8	

* Mean of 3 stations

Figure 1: The relationship between Secchi disc and chlorophyll a for Salerno Lake and a number of recreational lakes in the province. All data are seasonal means.



In the seven years that Salerno Lake has been monitored for this programme, the seasonal mean Secchi disc readings ranged from 3.6 to 6.0 metres at station A and from 3.9 to 5.0 metres at station B. The seasonal mean chlorophyll a concentrations ranged from 3.9 to 5.0 ug/L at station A and from 2.2 to 4.8 ug/L at station B. There appears to be a trend towards increasing chlorophyll a concentrations from year to year, especially at station B. It is recommended that participation in this programme be continued in order to determine if this trend persists.

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SHADOW LAKE

Township of Sommerville

County of Victoria

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Shadow Lake in 1980

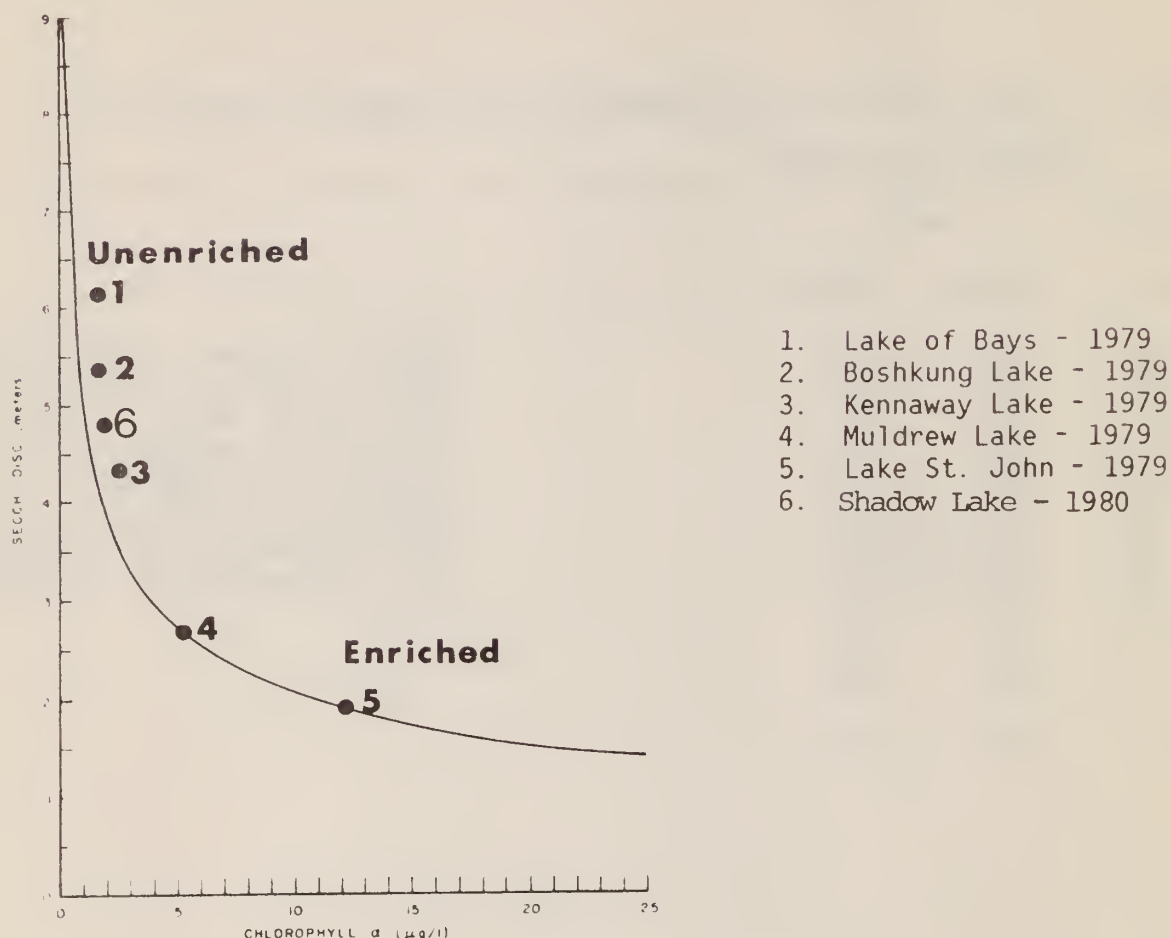
Station	Main	
Date	S.D.	Chl.a
May 19	3.4	2.3
June 29	3.7	2.8
July 6	4.0	2.4
July 13	4.3	2.5
July 20	5.2	1.5
Aug. 4	6.1	1.0
Aug. 10	5.5	1.1
Aug. 17	5.5	1.3
Aug. 24	6.1	1.5
Sept. 1	4.6	2.4
Oct. 13	4.6	1.1
Mean	4.8	1.8

Another excellent sampling program has been carried out this year on Shadow Lake. Based on the average Secchi disc readings and chlorophyll a concentration the lake is considered moderately enriched with relatively low algal density and a moderately high degree of water transparency.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Shadow Lake from 1972 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972	6.0	1.0
1973	5.0	0.7
1974	5.0	1.0
1975	- -	- -
1976	- -	- -
1977	4.3	- -
1978	4.8	1.8
1979	4.9	2.3
1980	4.8	1.8

Figure 1: The relationship between Secchi disc and chlorophyll a for Shadow Lake and a number of recreational lakes in the province. All data are seasonal means.



Minor year to year variation in average values noted in Table 2 indicates that Shadow Lake has a relatively stable enrichment status. Continued participation in the sampling program is encouraged to be sure of long term trends.

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SIX MILE LAKE

Township of Georgian Bay

District Municipality of Muskoka

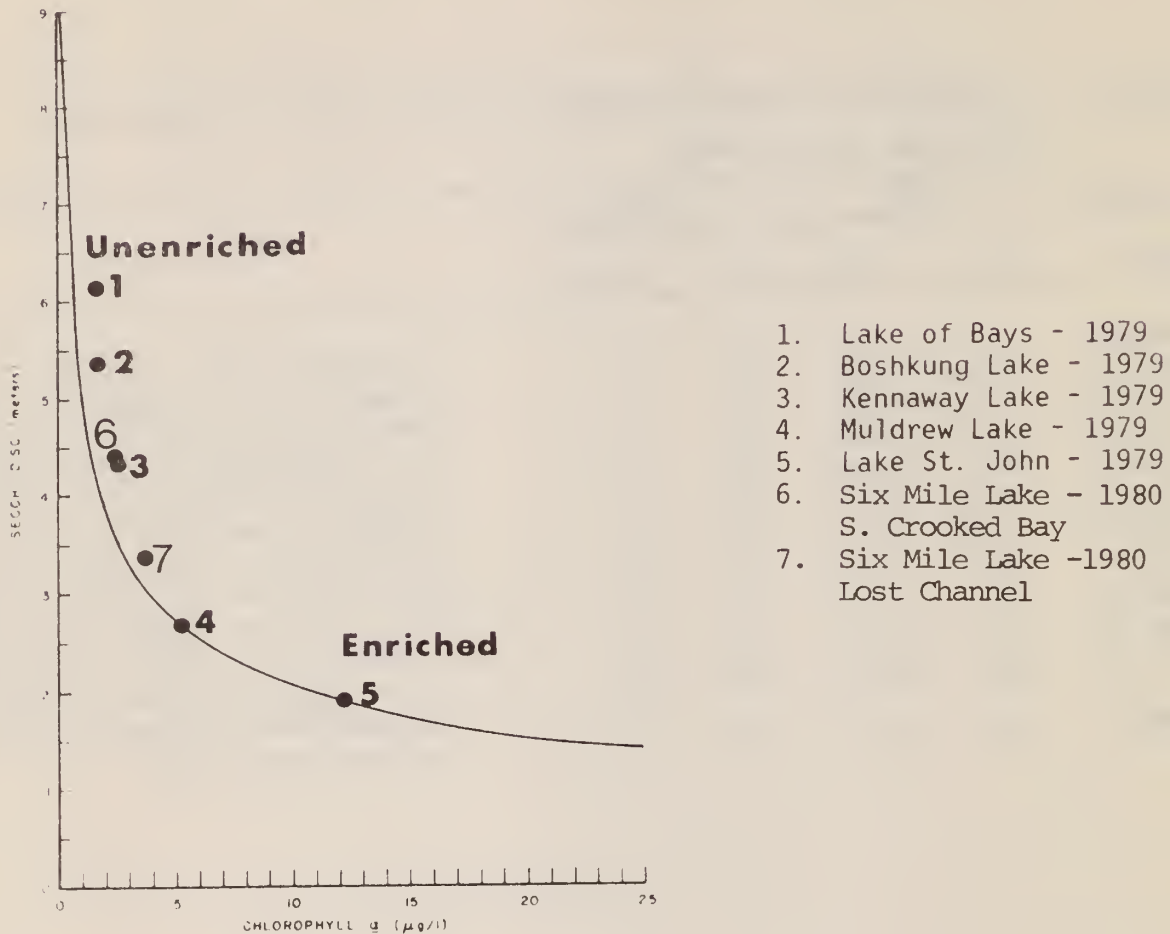
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Six Mile Lake in 1980

Station	#1 (S. Crooked Bay)		#2 (Lost Channel)		
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	
May 11	3.1	2.3	2.1	2.9	The Secchi disc readings varied from 3.1 to 6.0 metres at Station 1 and from 1.0 to 5.75 metres at Station 2. Chlorophyll <u>a</u> concentrations varied from 0.9 to 3.7 ug/L at Station 1 and from 1.7 to 6.3 ug/L at Station 2. Based on the seasonal means for the two parameters monitored, Six Mile Lake would be considered moderately enriched characterized by a moderate degree of water transparency and moderate densities of suspended algae.
May 19	4.1	3.1	4.0	3.7	
June 15	4.0	3.0	3.5	2.6	
June 30	3.3	3.5	1.0	3.8	
July 6	4.5	3.2	3.5	5.3	
July 13	5.4	2.1	4.2	3.1	
July 20	6.0	1.4	5.75	1.7	
Aug. 3	4.8	1.8	2.5	6.3	
Aug. 10	4.7	2.9	3.3	3.5	
Aug. 19	4.1	3.7	3.0	4.3	
Aug. 28	4.3	0.9	4.0	3.4	
Mean	4.4	2.5	3.4	3.7	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Six Mile Lake from 1977 to 1980.

Station	1 (S. Crooked Bay)		2 (Lost Channel)	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
1971				
1972				
1973				
1974				
1975				
1976				
1977	4.1	--	4.1	--
1978	4.1	2.4	3.8	2.9
1979	5.6	2.8	5.5	2.4
1980	4.4	2.5	3.4	3.7

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Six Mile Lake and a number of recreational lakes in the province. All data are seasonal means.



In the last four years, the seasonal mean Secchi disc readings ranged from 4.1 to 5.6 metres at Station 1 and from 3.4 to 5.5 metres at Station 2. The seasonal mean chlorophyll *a* concentrations ranged from 2.4 to 2.8 ug/L at Station 1 and from 2.4 to 3.7 ug/L at Station 2. In 1980, at Station 2 there was a slight decrease in the degree of water transparency and an increase in the densities of suspended algae. It is recommended that participation in this programme be continued in order to determine if this trend persists or is due to natural fluctuation.

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SKELETON LAKE

Township of Muskoka Lakes

District Municipality of Muskoka

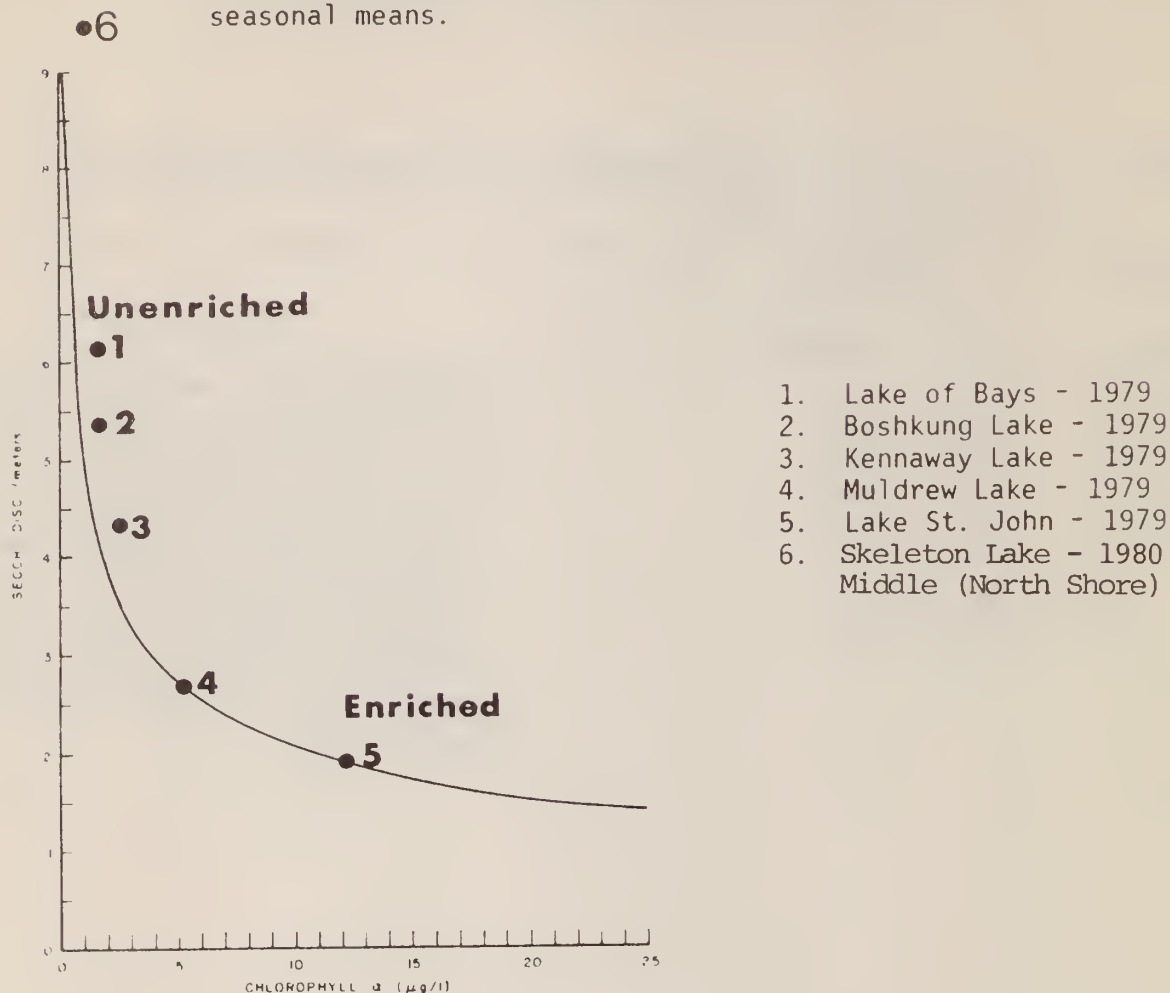
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Skeleton Lake in 1980

Station	Middle (North Shore)		
Date	S.D.	Chl.a	
May 25	10.0	0.3	The Secchi disc readings varied from 9.0 to 10.0 metres and chlorophyll <u>a</u> concentrations varied from 0.3 to 2.2 ug/L. It is recommended that at least six samples be taken in future in order to get a reliable seasonal mean. Based on the seasonal means for these two parameters, Skeleton Lake would be considered extremely unenriched, characterized by a very high degree of water transparency and low densities of suspended algae.
July 6	9.0	0.7	
Aug. 10	10.0	1.1	
Sept. 7	9.0	2.2	
Mean	9.5	1.1	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Skeleton Lake in 1980

Station	Middle (North Shore)		
Year	S.D.	Chl.a	
1971			
1972			
1973			
1974			
1975			
1976			
1977			
1978			
1979			
1980	9.5	1.1	

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Skeleton Lake and a number of recreational lakes in the province. All data are seasonal means.



It is recommended that participation in this programme be continued in order to monitor future water quality trends in Skeleton Lake.

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SOYERS LAKE

Township of Minden

Provisional County of Haliburton

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Soyers Lake in 1980

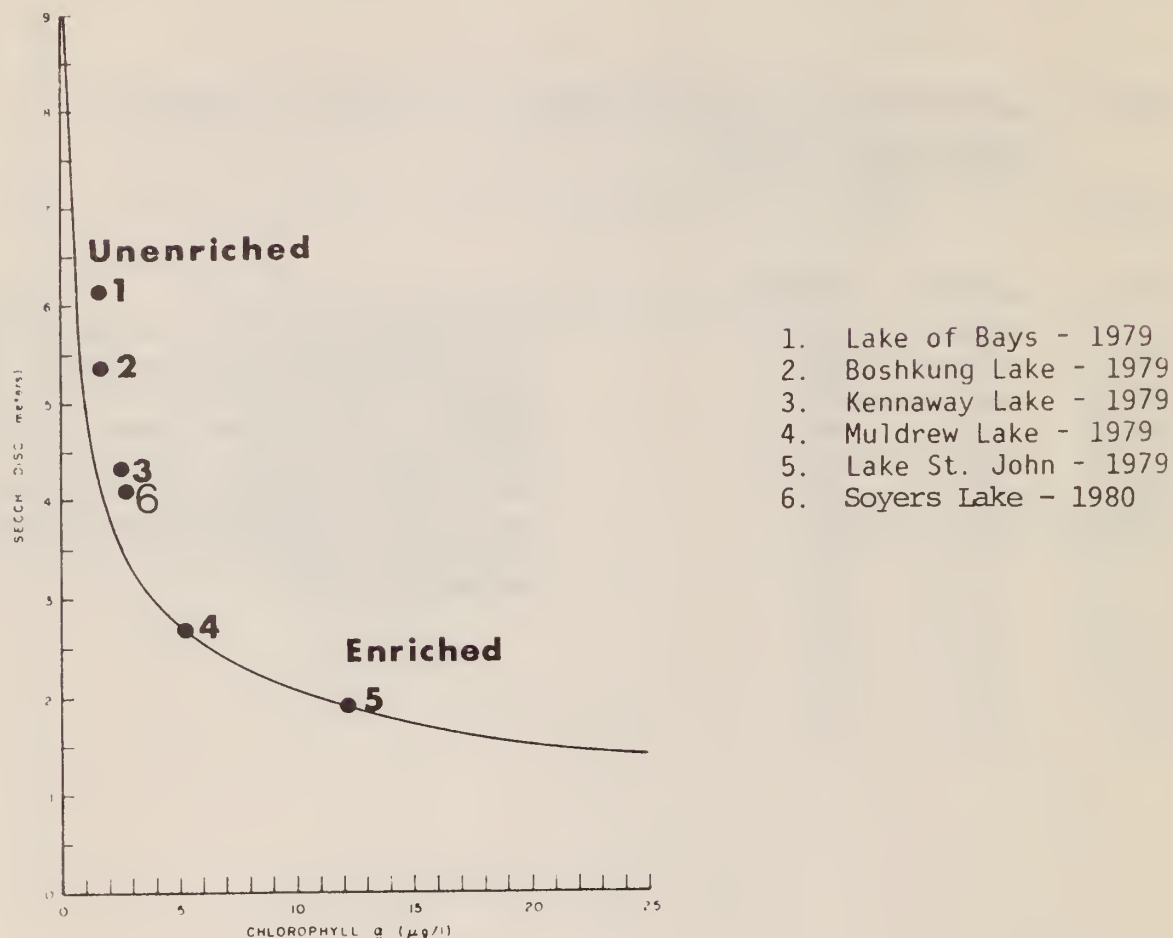
Station	#1	
Date	S.D.	Chl.a
May 19	3.8	1.5
June 1	4.3	2.6
June 7	4.3	1.7
June 15	3.5	1.7
July 6	4.1	3.2
July 20	5.0	2.7
July 27	4.3	1.8
Aug. 4	3.7	3.0
Aug. 10	4.4	4.8
Aug. 17	4.1	2.7
Aug. 24	4.0	2.7
Sept. 1	<u>3.7</u>	<u>3.3</u>
Mean	4.1	2.6

The Secchi disc readings varied from 3.5 to 5.0 metres and chlorophyll a concentrations varied from 1.5 to 4.8 ug/L. Based on the seasonal means for the two parameters monitored, Soyers Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderately low densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Soyers Lake from 1973 to 1980

Station		
Year	S.D.	Chl.a
1971		
1972		
1973	3.8	1.7
1974	4.4	0.9
1975	3.5	2.1
1976	4.3	1.7
1977	5.0	- -
1978	5.2	1.8
1979	4.5	2.2
1980	4.1	2.6

Figure 1: The relationship between Secchi disc and chlorophyll a for Soyers Lake and a number of recreational lakes in the province. All data are seasonal means.



In the eight years that Soyers Lake has been monitored for this programme the seasonal mean Secchi disc readings ranged from 3.5 to 5.2 metres. The seasonal mean chlorophyll a concentrations ranged from 0.9 to 2.6 ug/L. There is some natural fluctuation from year to year, however, Soyers Lake appears to be in a stable condition. It is recommended that participation in this programme be continued in order to monitor future water quality trends.

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STONY LAKE

Township of Dummer

County of Peterborough

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Stony Lake in 1980

Station	A		B		C	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
May 18	--	--	2.8	5.8	2.5	7.4
July 9	4.0	5.7				
Aug. 5	3.5	1.7				
Sept. 30	3.5	3.6				

Insufficient data was collected to allow any meaningful conclusions to be made. It is recommended that at least six sets of samples per station be taken in order to get a reliable seasonal mean.

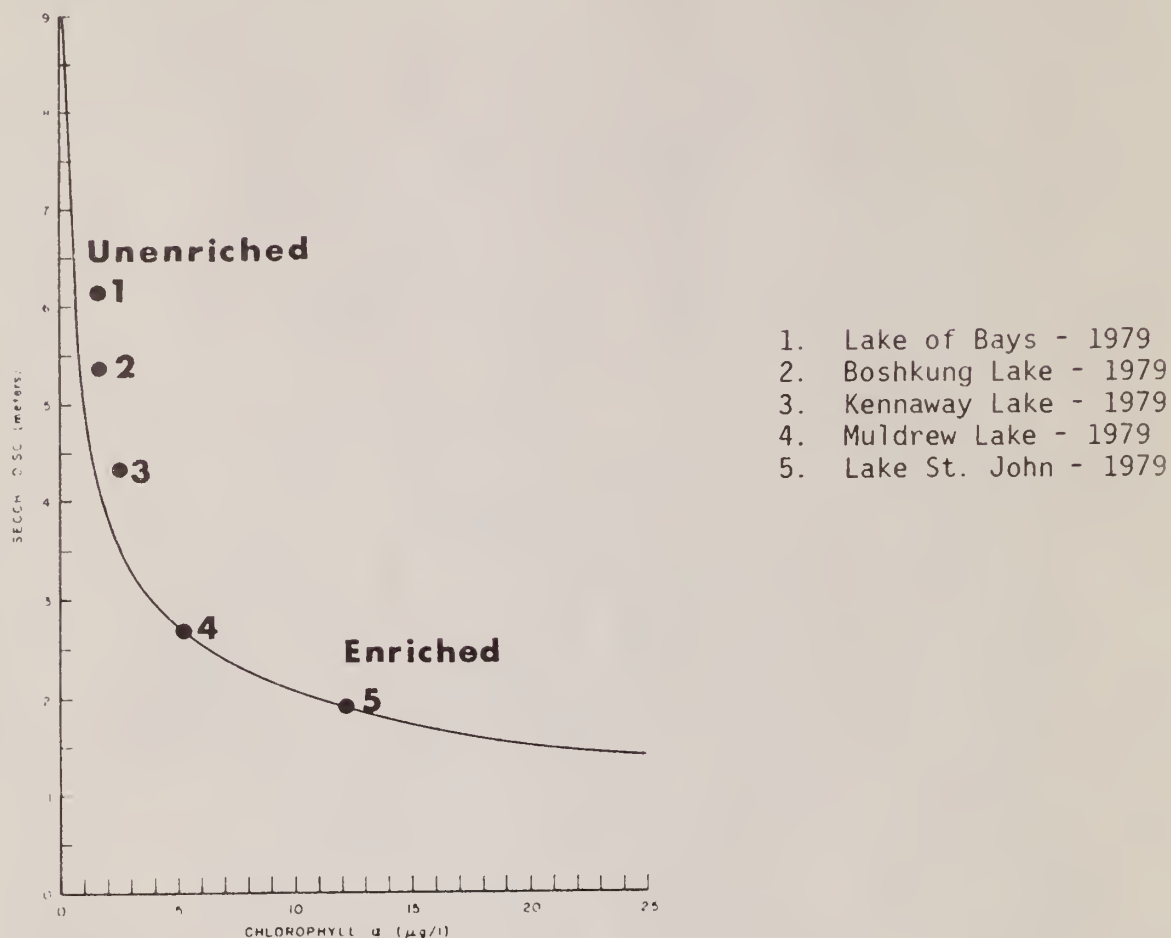
TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Stony Lake between 1971 and 1980

Station	A		B		C	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971 *	4.8	2.3	--	--	--	--
1972 *	3.7	2.8	--	--	2.5	4.7
1973						
1974						
1975						
1976 *	4.3	3.9	--	--	--	--
1977	--	--	3.0	1.5	2.3	5.7
1978	3.9 (**4.6)	2.1 (**3.1)	--	--	4.0 (**2.6)	1.1 (**5.7)
1979	3.7	2.6	--	--	--	--
1980	--	--	--	--	--	--

* Mean values of samples taken by MOE staff.

** Mean values from MOE/7 links Water Quality Survey 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Stony Lake and a number of recreational lakes in the province. All data are seasonal means.



More frequent sampling during 1981 is required to obtain meaningful data.

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SUNNY LAKE

Town of Gravenhurst

District Municipality of Muskoka

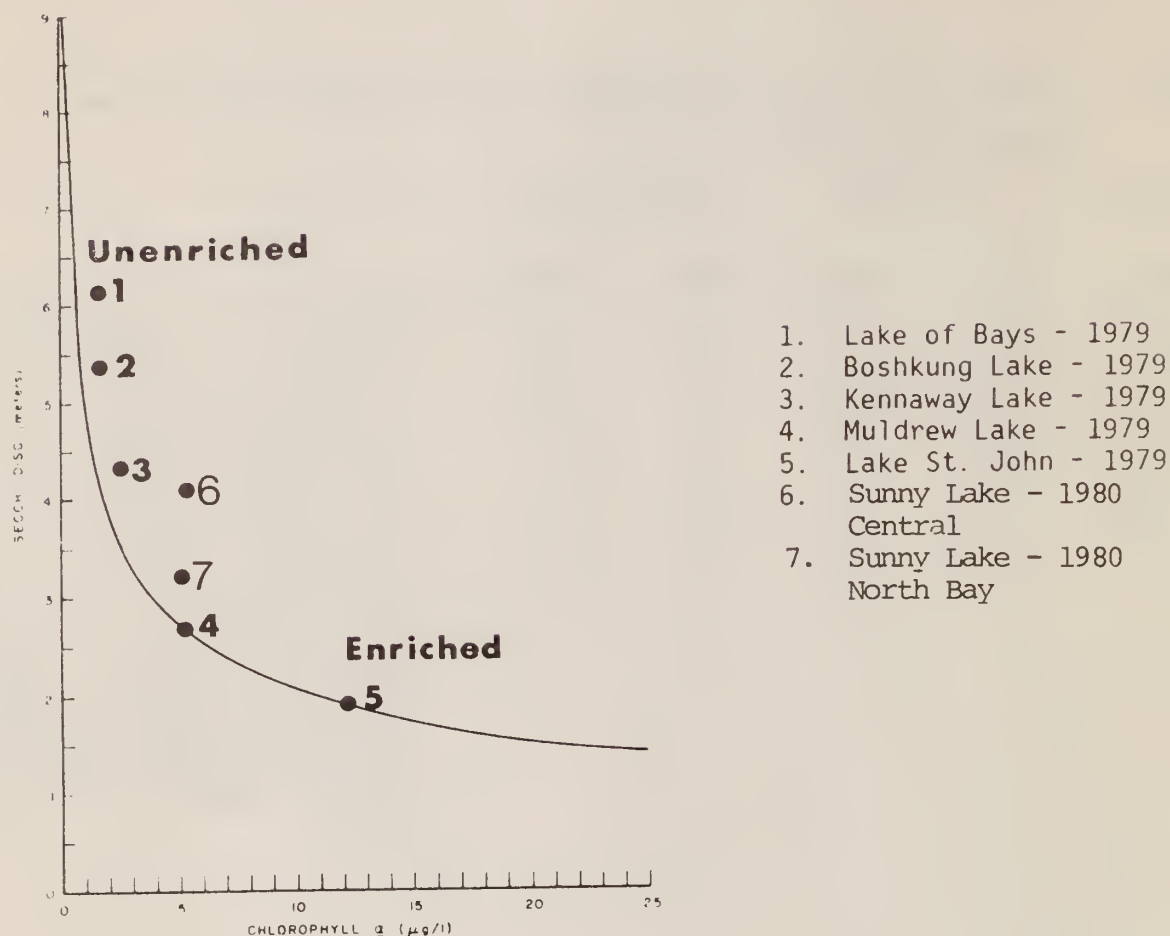
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Sunny Lake in 1980

Station	Central		North Bay		
Date	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>	
June 14	3.5	4.2	3.5	- -	The Secchi disc readings varied from 3.0 to 5.0 metres at Central station and from 3.0 to 3.5 metres at North Bay station. Chlorophyll <u>a</u> concentrations varied from 2.1 to 10.0 ug/L at Central station and from 1.6 to 10.0 ug/L at North Bay. The highest densities of suspended algae were observed on August 17, 1980 at both stations. Based on the seasonal means for the two parameters monitored, Sunny Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and high densities of suspended algae.
July 3	5.0	2.1	3.5	1.6	
July 20	5.0	3.5	3.0	3.2	
Aug. 4	- -	4.8	- -	7.6	
Aug. 17	4.0	10.0	3.0	10.0	
Sept. 1	4.0	5.5	3.5	- -	
Sept. 28	3.0	7.5	3.0	2.9	
Mean	4.1	5.4	3.2	5.1	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Sunny Lake in 1979 and 1980

Station	Central		North Bay	
Year	S.D.	Chl. <u>a</u>	S.D.	Chl. <u>a</u>
1971				
1972				
1973				
1974				
1975				
1976				
1977				
1978				
1979	5.2	4.8	3.8	3.1
1980	4.1	5.4	3.2	5.1

Figure 1: The relationship between Secchi disc and chlorophyll a for Sunny Lake and a number of recreational lakes in the province. All data are seasonal means.



Since Sunny Lake has been monitored for only two years, there is insufficient historical data available to make a reliable assessment of long-term trends in water quality. It is recommended that this programme be continued in order to monitor future water quality trends.

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TASSO LAKE

Township of Lake of Bays

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Tasso Lake in 1980

Station	1st Bay South		1st Bay North		2nd Bay South		3rd Bay South		4th Bay South	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
July 2	6.0	1.5	--	--	6.0	3.1	--	--	--	--
July 17	8.0	1.5	7.0	1.5	--	--	--	--	--	--
Aug. 4	6.0	0.8	6.1	0.9	7.0	2.3	6.5	2.0	--	--
Sept. 15	--	--	--	--	6.3	3.0	--	--	8.0	2.2

Insufficient data to determine seasonal mean

It is recommended that stations be sampled at least six times throughout the season in order to get a reliable seasonal mean. Perhaps the number of stations should be decreased so that more effort can be directed towards higher sampling frequency. Based on the values obtained for 1980, it appears that Tasso Lake is unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Tasso Lake in 1980

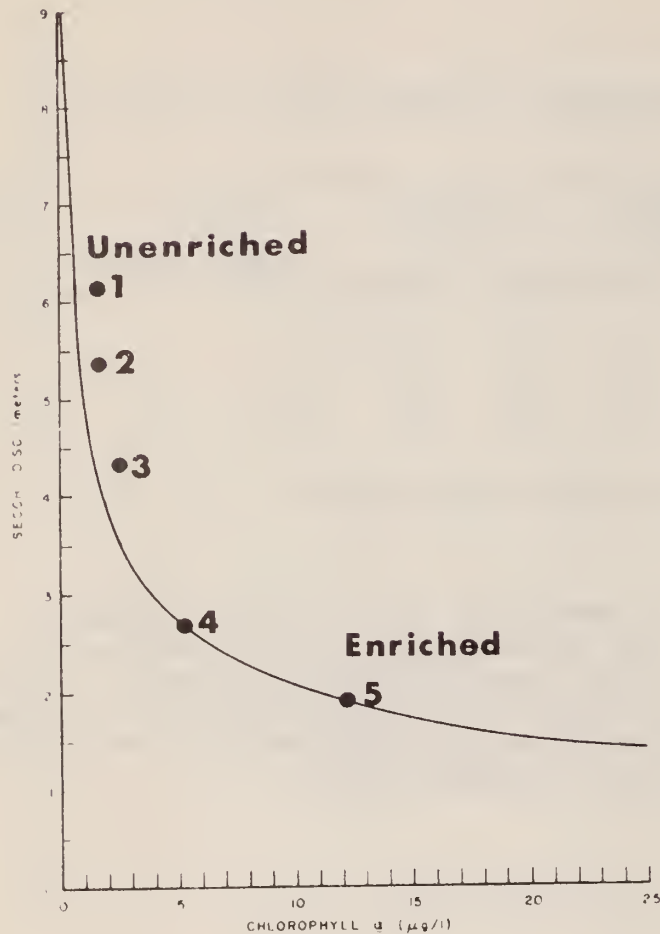
Station	1st Bay South		1st Bay North		2nd Bay South		3rd Bay South		4th Bay South	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a

1971
1972
1973
1974
1975
1976
1977
1978
1979
1980

-- -- -- -- -- -- -- -- -- --

Figure 1:

The relationship between Secchi disc and chlorophyll a for Tasso Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979

It is recommended that if participation in this programme is to be continued, sampling frequency must be increased. At least six samples per station are needed in order to get a reliable seasonal mean.

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TOCK LAKE

McClintock Township

Provisional County of Haliburton

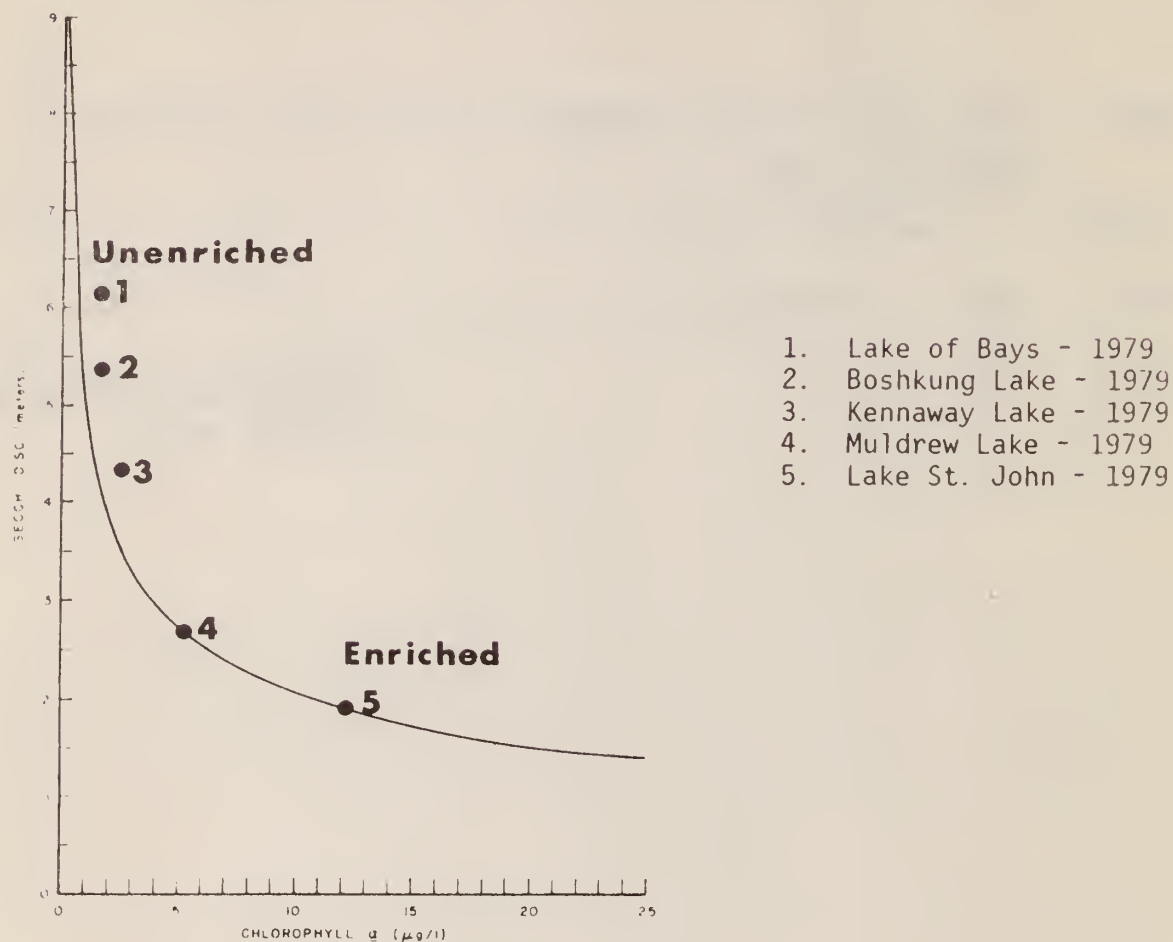
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Tock Lake in 1980

Station	West Bay	
Date	S.D.	Chl. <u>a</u>
Aug. 4	6.0	2.8
Insufficient data was collected in 1980 to make an assessment of enrichment status.		

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Tock Lake in 1980

Station		
Year	S.D.	Chl. <u>a</u>
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978		
1979		
1980	--	--

Figure 1: The relationship between Secchi disc and chlorophyll a for Tock Lake and a number of recreational lakes in the province. All data are seasonal means.



If participation in this programme is to be continued, it is recommended that the sampling frequency be increased as six samples are required in order to get a reliable seasonal mean.

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TWELVE MILE BAY

Township of Georgian Bay

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Twelve Mile Bay in 1980

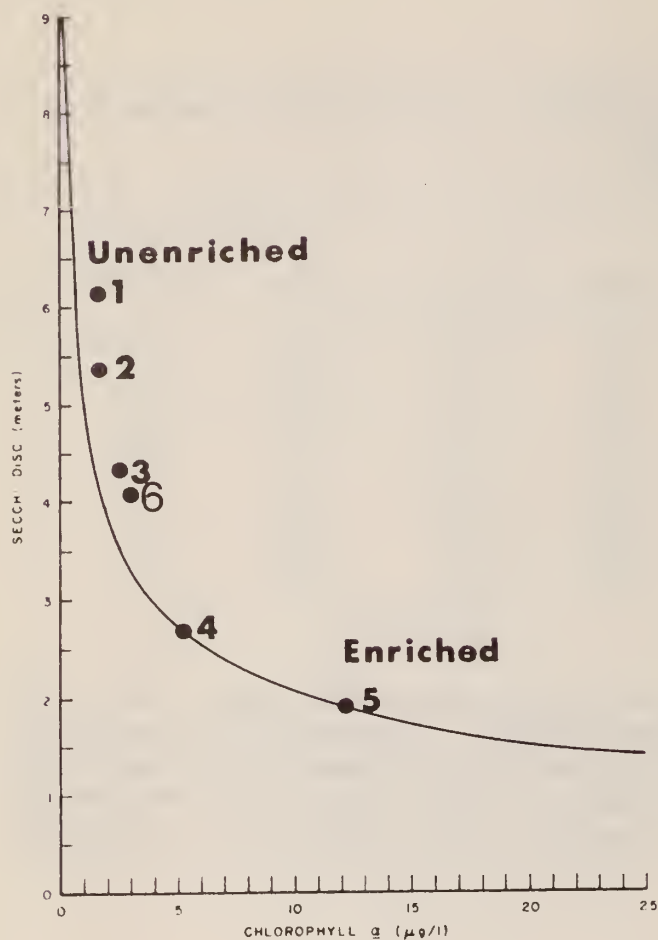
Station	1		2		3	
Date	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
July 7	4.5	3.1	3.5	5.1	3.5	3.1
July 13	5.75	2.1	5.0	2.2	4.5	1.5
July 20	4.0	2.9	4.5	6.6	2.75	4.6
July 27	5.0	2.4	5.25	3.1	4.5	3.2
Aug. 12	3.5	3.0	4.5	3.3	3.5	2.7
Sept. 1	3.5	3.5	4.5	4.0	3.5	2.8
Sept. 7	2.5	4.4	3.25	5.2	3.25	3.7
Mean	4.1	3.1	4.4	4.2	3.2	3.1

Based on the seasonal means for the two parameters monitored, Twelve Mile Bay would be considered moderately enriched, characterized by a moderate degree of water transparency and moderately high densities of suspended algae. On July 13, 1980 a high degree of water transparency was observed at all three stations and this coincided with low densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Twelve Mile Bay in 1980

Station	1		2		3	
Year	S.D.	Chl.a	S.D.	Chl.a	S.D.	Chl.a
1971						
1972						
1973						
1974						
1975						
1976						
1977						
1978						
1979						
1980	4.1	3.1	4.4	4.2	3.2	3.1

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Twelve Mile Bay and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Twelve Mile Bay - 1980
Station 1

It is recommended that participation in this programme be continued in order to monitor long-term water quality trends.

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TWELVE MILE LAKE

Minden Township

Provisional County of Haliburton

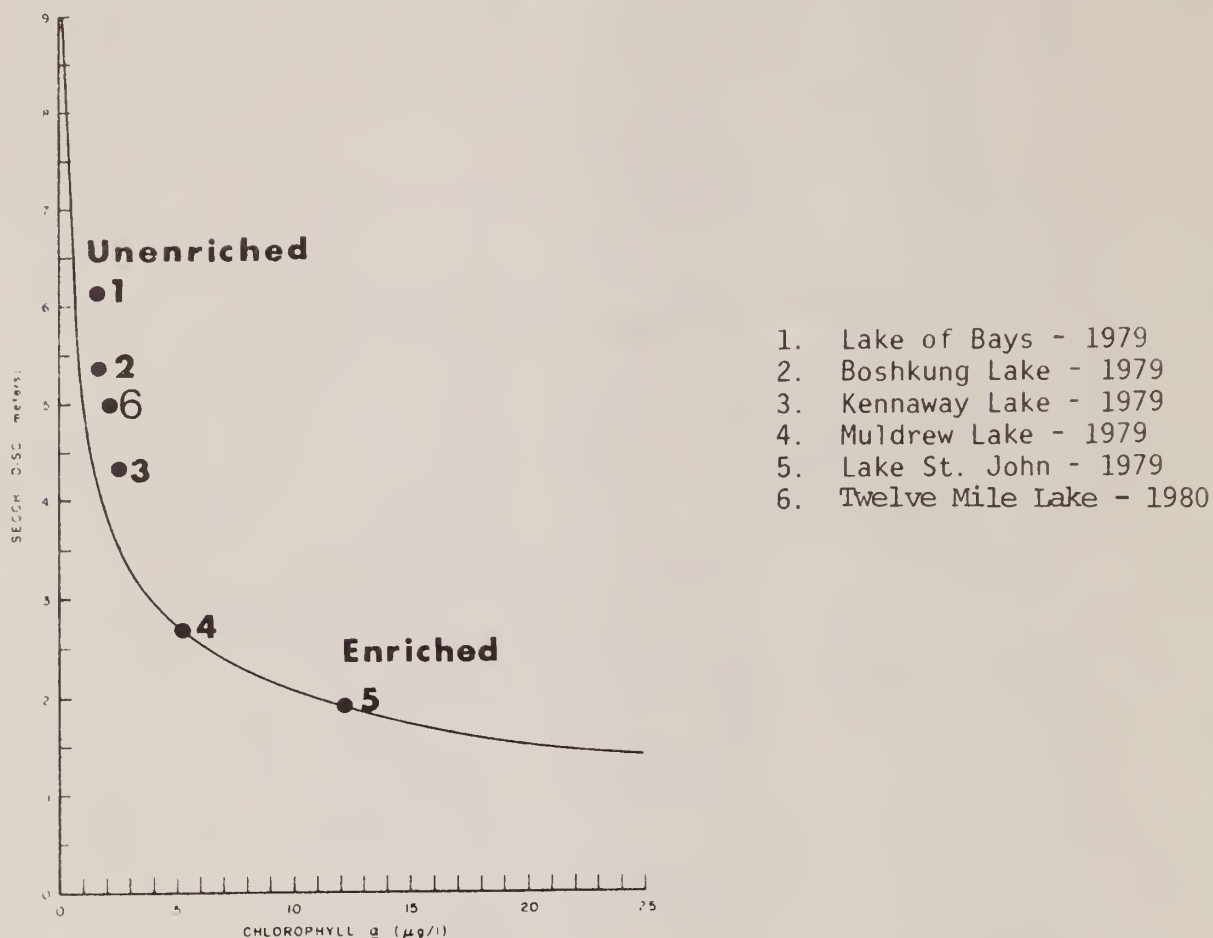
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Twelve Mile Lake in 1980

Station			
Date	S.D.	Chl. <u>a</u>	
July 6	4.9	2.2	The Secchi disc readings varied from 4.3 to 5.8 metres and chlorophyll <u>a</u> concentrations varied from 1.3 to 3.1 ug/L. The highest degree of water transparency occurred on July 20, 1980 and coincided with the lowest densities of suspended algae. Based on the seasonal means for the two parameters monitored, Twelve Mile Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.
July 13	5.5	2.0	
July 20	5.8	1.3	
July 27	- -	2.1	
Aug. 4	4.3	1.6	
Aug. 10	5.2	1.8	
Aug. 17	4.9	3.5	
Aug. 24	4.9	2.5	
Sept. 1	4.9	3.1	
Oct. 13	<u>4.6</u>	<u>1.9</u>	
Mean	5.0	2.2	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Twelve Mile Lake from 1972 to 1980

Station			Main
Year	S.D.	Chl. <u>a</u>	
1971			
1972	5.9	1.2	
1973	6.3	1.8	
1974	6.0	1.0	
1975	6.9	2.5	
1976	6.5	1.7	
1977	6.5	- -	
1978	- -	- -	
1979	- -	- -	
1980	5.0	2.2	

Figure 1: The relationship between Secchi disc and chlorophyll a for Twelve Mile Lake and a number of recreational lakes in the province. All data are seasonal means.



In the seven years that this lake has been monitored for this programme, the seasonal mean Secchi disc readings ranged from 5.0 to 6.9 metres. Seasonal mean chlorophyll a concentrations ranged from 1.0 to 2.5 ug/L. In 1980, there seems to have been a slight decrease in water transparency and a slight increase in densities of suspended algae. It is recommended that participation in this programme be continued in order to determine if this trend persists or is due to natural fluctuation.

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WALKER'S LAKE

Township of Lake of Bays

District Municipality of Muskoka

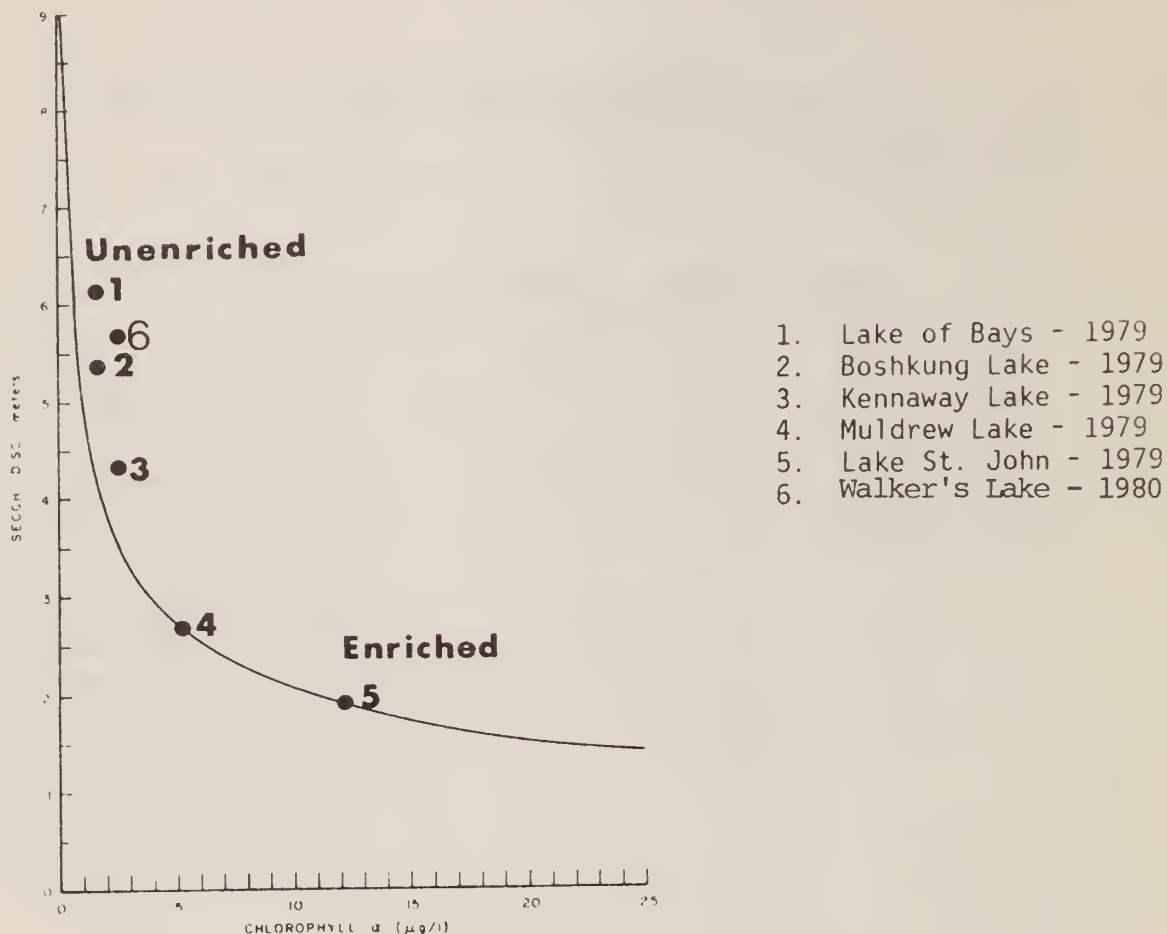
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Walker's Lake in 1980

Station	1		2		
Date	S.D.	Chl.a	S.D.	Chl.a	
July 6	5.8	3.8	--	--	The Secchi disc readings varied from 5.5 to 5.8 metres and chlorophyll a concentrations varied from 1.3 to 3.8 ug/L at Station 1. There was very little change in water quality throughout the season at Station 1. Insufficient sampling was done at Station 2 to get reliable information on the water quality there. Based on the seasonal means for the two parameters, Walker's Lake would be considered between unenriched and moderately enriched characterized by a high degree of water transparency and moderately low densities of suspended algae.
July 20	5.8	2.1	5.8	3.0	
Aug. 1	5.5	2.9	--	--	
Aug. 11	5.8	1.3	--	--	
Aug. 17	<u>5.8</u>	<u>3.0</u>	<u>--</u>	<u>--</u>	
Mean	5.7	2.6			

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Walker's Lake from 1974 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974	6.4	1.6
1975	5.6	1.6
1976	5.4	2.6
1977	7.2	--
1978	5.8	1.8
1979	4.5	3.1
1980	5.7	2.6

Figure 1: The relationship between Secchi disc and chlorophyll a for Walker's Lake and a number of recreational lakes in the province. All data are seasonal means.



In the last seven years, the seasonal mean Secchi disc readings ranged from 4.5 to 7.2 metres and chlorophyll a concentrations ranged from 1.6 to 3.1 ug/L. There does not seem to be any obvious trend toward a change in the enrichment status of Walker's Lake and variations from year to year are probably due to natural fluctuation. It is recommended that participation in this programme be continued in order to determine long-term trends in water quality.

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WASEOSA LAKE

Town of Huntsville

District Municipality of Muskoka

TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Waseosa Lake in 1980

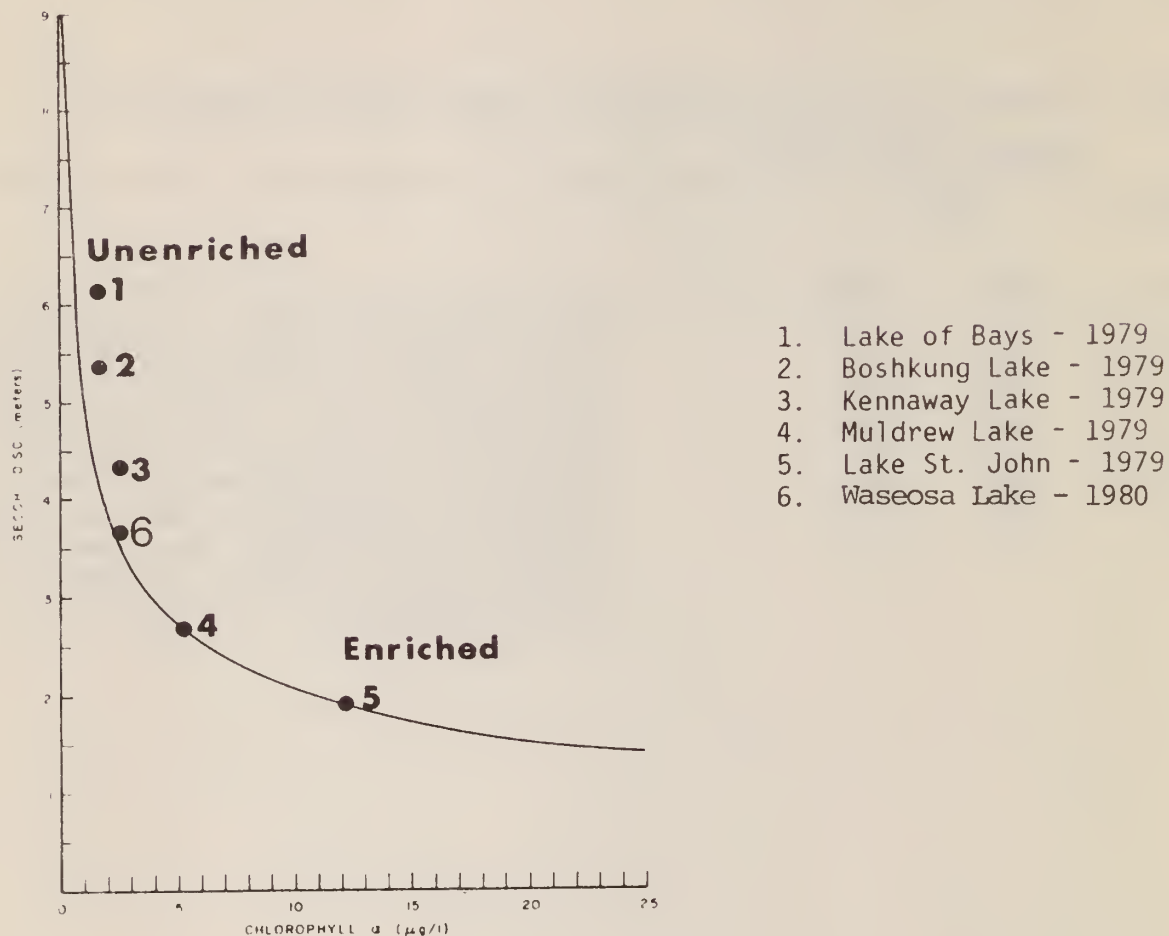
Station	Main	
Date	S.D.	Chl.a
July 6	3.0	3.0
July 13	3.0	2.7
July 20	4.0	2.7
Aug. 4	4.5	3.0
Aug. 17	4.0	2.6
Sept. 1	<u>3.5</u>	<u>1.4</u>
Mean	3.7	2.6

The Secchi disc readings varied from 3.0 to 4.5 metres and chlorophyll a concentrations varied from 1.4 to 3.0 ug/L during the sampling period. There was minimal variation in the parameters monitored. Based on the seasonal means of these two parameters, Waseosa Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L)
data collected from Waseosa Lake in 1974, 1975 and 1977 to 1980

Station	Main	
Year	S.D.	Chl.a
1971		
1972		
1973		
1974	4.2	2.8
1975	4.1	5.2
1976	- -	- -
1977	5.1	- -
1978	4.8	2.8
1979	3.8	4.4
1980	3.7	2.6

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Waseosa Lake and a number of recreational lakes in the province. All data are seasonal means.



In the six years that Waseosa Lake has been monitored for this programme, the seasonal mean Secchi disc readings ranged from 3.7 to 5.1 metres. The seasonal mean chlorophyll *a* concentrations ranged from 2.6 to 5.2 ug/L. There has been some variation in the seasonal means from year to year, which may be due to natural fluctuation. It is recommended that participation in this programme be continued in order to determine future water quality trends in Waseosa Lake.

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WENONA LAKE

Dudley Township

Provisional County of Haliburton

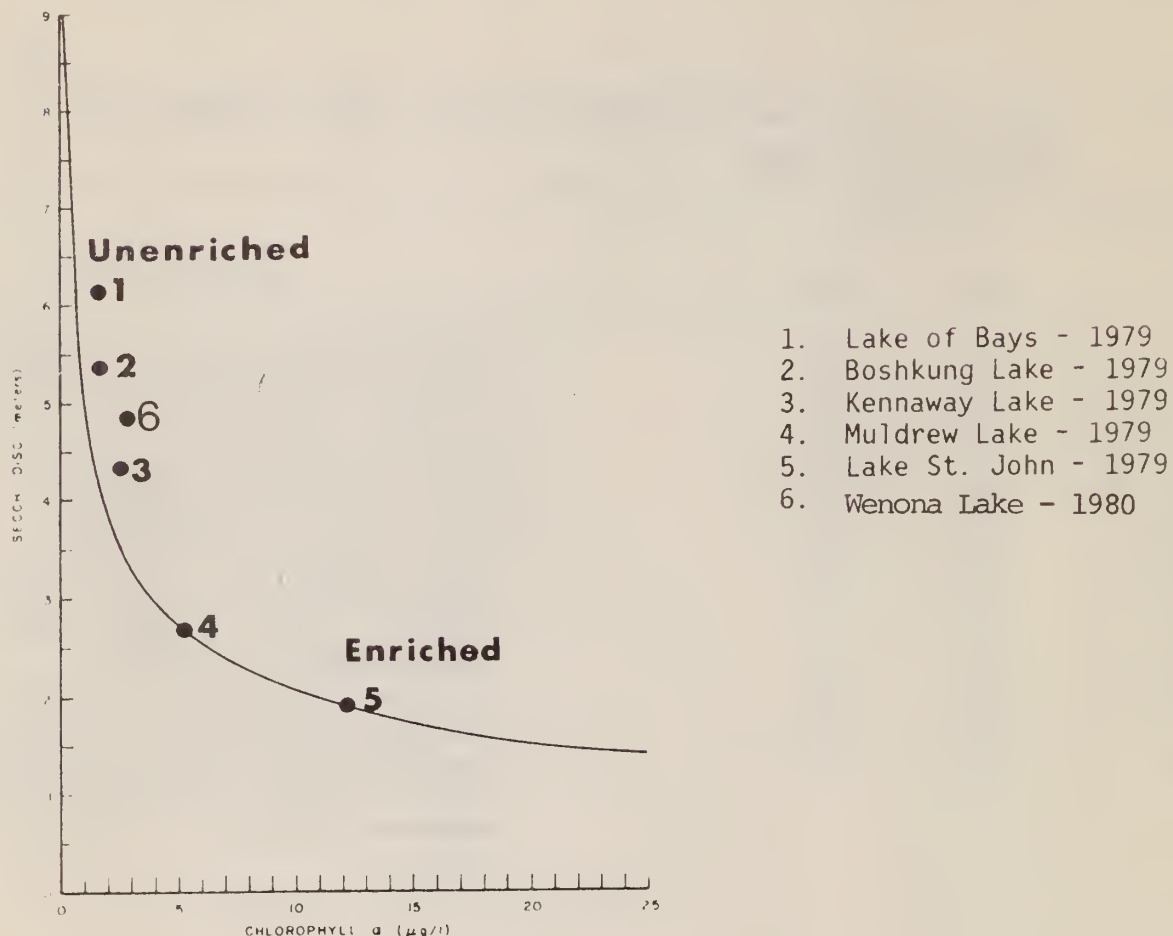
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Wenona Lake in 1980

Station North Bay			
Date	S.D.	Chl.a	
May 19	7.0	3.1	The Secchi disc readings varied from 4.0 to 7.0 metres and chlorophyll <u>a</u> concentrations varied from 1.7 to 4.0 ug/L. The highest degree of water transparency occurred on May 19 and then declined until July 20, 1980. Chlorophyll <u>a</u> concentrations also exhibited variation but there were no trends observed. Based on the seasonal means for the two parameters monitored, Wenona Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderate densities of suspended algae.
June 1	5.0	4.0	
June 8	5.25	2.7	
June 15	4.75	4.0	
June 22	4.5	3.8	
July 6	4.25	2.2	
July 20	4.0	3.1	
July 27	4.75	2.6	
Aug. 4	5.0	- -	
Aug. 10	4.75	1.7	
Aug. 17	4.5	2.7	
Aug. 24	<u>4.5</u>	<u>2.5</u>	
Mean	4.8	2.9	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Wenona Lake in 1979 and 1980

Station		
Year	S.D.	Chl.a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978		
1979	5.0	3.6
1980	4.8	2.9

Figure 1: The relationship between Secchi disc and chlorophyll *a* for Wenona Lake and a number of recreational lakes in the province. All data are seasonal means.



There is insufficient historical data for Wenona Lake to make any reliable assessment of long term trends in water quality. It is recommended that participation in this programme be continued in order to monitor any changes which may be occurring.

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WOOD LAKE

Town of Bracebridge

District Municipality of Muskoka

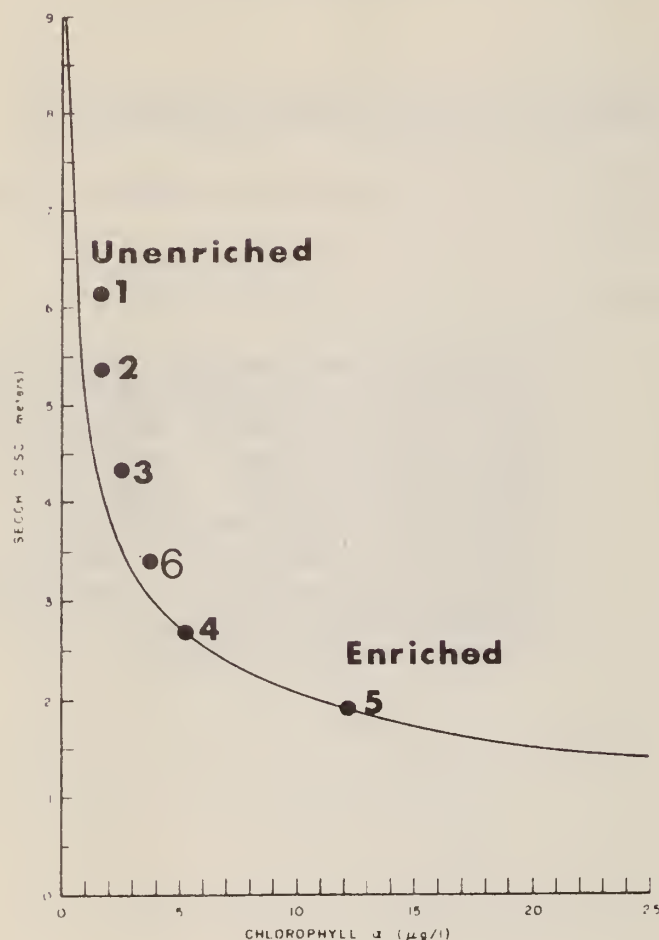
TABLE 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from
Wood Lake in 1980

Station	Centre		
Date	S.D.	Chl. <u>a</u>	
Aug. 4	3.75	4.6	The Secchi disc readings varied from 3.1 to 3.75 metres and chlorophyll <u>a</u> concentrations varied from 3.2 to 4.6 ug/L. There was a minimal amount of variation in the parameters monitored. Based on the seasonal means for these two parameters, Wood Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.
Aug. 10	3.50	3.4	
Aug. 17	3.75	3.6	
Aug. 24	3.25	4.0	
Sept. 14	3.1	3.3	
Sept. 21	<u>3.25</u>	<u>3.2</u>	
Mean	3.4	3.7	

TABLE 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/L) data collected from Wood Lake in 1974, 1975 and 1978 to 1980

Station	Centre	
Year	S.D.	Chl. <u>a</u>
1971		
1972		
1973		
1974	4.5	1.3
1975	4.7	2.9
1976	- -	- -
1977	- -	- -
1978	2.8	3.0
1979	4.3	3.6
1980	3.4	3.7

Figure 1: The relationship between Secchi disc and chlorophyll a for Wood Lake and a number of recreational lakes in the province. All data are seasonal means.



1. Lake of Bays - 1979
2. Boshkung Lake - 1979
3. Kennaway Lake - 1979
4. Muldrew Lake - 1979
5. Lake St. John - 1979
6. Wood Lake - 1980

In the five years that Wood Lake has been sampled for this programme, the seasonal mean Secchi disc readings ranged from 2.8 to 4.7 metres. The seasonal mean chlorophyll a concentrations ranged from 1.3 to 3.7 ug/L. There appears to be a trend towards increasing chlorophyll a concentrations and decreasing water transparency in Wood Lake. It is recommended that participation in this programme be continued in order to determine if this trend persists.

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